

ANALYTICAL REPORT

Job Number: 280-107405-1

Job Description: FAY-2018 Residential Sampling

For:

Chemours Company FC, LLC
c/o AECOM
Sabre Building, Suite 300
4051 Ogletown Road
Newark, DE 19713

Attention: Michael Aucoin



Approved for release.
Michelle A Johnston
Project Manager II
3/27/2018 7:26 AM

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03/27/2018

cc: Barbara McGraw
Kelly Rinehimer

The test results in this report relate only to the samples in this report and meet all requirements of NELAC, with any exceptions noted. Pursuant to NELAP, this report shall not be reproduced except in full, without the written approval of the laboratory. All questions regarding this report should be directed to the TestAmerica Denver Project Manager.

The Lab Certification ID# is 4025.

Reporting limits are adjusted for sample size used, dilutions and moisture content if applicable.

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Definitions/Glossary

Client: Chemours Company FC, LLC The
Project/Site: FAY-2018 Residential Sampling

TestAmerica Job ID: 280-107405-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
%	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

TestAmerica Denver

CASE NARRATIVE

Client: The Chemours Company FC, LLC

Project: FAY-2018 Residential Sampling

Report Number: 280-107405-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

For samples requiring analysis at a dilution, the dilution factor has been multiplied by the Method Detection Limit (MDL) for each analyte and evaluated versus the project-specific reporting limit (PSRL). If the obtained value is below the PSRL, then the PSRL is preserved as the reporting limit for the diluted result, otherwise, the obtained value becomes the reporting limit. This is done in order to maintain the PSRL to meet project requirements at the request of the client and to report the lowest possible RL for each analyte.

Receipt

The samples were received on 3/15/2018 9:15 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.7° C. No anomalies were observed during sample receipt.

Standards

Analytical standards were prepared using the acid form of the compound Perfluoro(2-propoxypropanoic) acid (HFPO-DA).

The surrogate compound, 13C3 HFPO-DA was introduced at the extraction step and was used as an internal standard for quantitation of HFPO-DA. The concentration of the surrogate spike is 0.2ug/L in water samples or 50ug/kg in soil samples.

Sample Extraction and Analysis

The samples presented in this report were extracted for the target analyte by TestAmerica Denver's SOP DV-OP-0019, Rev. 8 and analyzed for the target analyte by TestAmerica Denver's SOP DV-LC-0012, Rev. 14, with the exceptions of the items indicated in the DuPont QAS. Sample FAY-D-5562MATTH-W1-1-031318 (280-107405-2) was chosen to be analyzed as a duplicate and also to be spiked with the target analyte.

For water samples a 250mL aliquot of each sample is extracted using solid phase extraction technique with methanol conditioned Weak Anion Exchange cartridges. Each sample is spiked with the internal standard/surrogate, prior to extraction. After the sample is passed through the cartridge, the analytes are eluted with 2%Formic Acid, 6mLs of HPLC grade MeOH and then with 4mL of 10% ammonium hydroxide in methanol. The final volume is brought to 5mL using reagent water and the extract is analyzed by LC/MS/MS.

The target analyte is separated from other components on a high-performance liquid chromatography (HPLC) C18 column with a mobile phase mixture of water containing 0.1% ammonium acetate and methanol. The mass spectrometer detector is operated in the electrospray (ESI) negative ion mode. The instrument is calibrated at 7 concentration levels (0.2, 0.5, 1.0, 2.0, 5.0, 10 and 20ug/L). The target analyte is detected as the perfluoro(2-propoxypropanoic) acid with the parent ion of 328.8 amu. The daughter ions used for analysis by LC/MS/MS are at 284.8 amu. The ratio of the peak areas to the two ions must be $\pm 20\%$ of the ion ratios in the mid-point ICAL for qualitative identification. Sample results are quantitated using the internal standard dilution.

Tuning and Calibration

The instrument is tuned with a solution of the target analyte such that mass assignments are within ± 0.5 amu of the daughter ions. The instrument is calibrated with seven concentration levels from 0.2ug/L to 20ug/L. Linear regression ($y=ax+b$) or quadratic functions ($y=ax^2+bx+c$) are used with a correlation coefficient or coefficient of determination ≥ 0.990 .

Following initial calibration (ICAL), an initial calibration blank (ICB) is tested, which consists of methanol spiked with the surrogate. The result for the target analyte must be less than one half the reporting limit (RL) to proceed.

Next an initial calibration verification (ICV) standard is tested. This is a mid-level concentration standard from a different vendor from the ICAL standard. If a different vendor is not available then, a different lot number from the same vendor is used. The ICV must be within 80-120% of the true value.

The quantitation limit verification standard is a standard from the same source as the ICAL tested run at the RL level to determine accuracy near the detection limit. This recovery must be within 70-130%.

Continuing calibration verification (CCV) standards are tested every 10 injections and are from the same source as the ICAL and are at mid-level concentration. The recovery of the CCVs must be 70-130% or recalibration is necessary.

Method QC Samples

The Method Blank is processed reagent water spiked with internal standard and prepared with each batch of 20 samples of the same matrix. All samples in the batch are processed at the same time and with the same reagents. The method blank must be less than the LOD or associated batch samples must be re-extracted and reanalyzed.

Each batch is prepared with a low- and a mid-level concentration spike Laboratory Control Samples (LCS). The recoveries of these samples must be within 70-130% or associated batch samples must be re-extracted and reanalyzed. If the recovery is biased high and samples are non-detect, results can be reported without re-extraction.

Calculations

Sample Result Calculation

For internal standard quantitation,

$$\text{HFPO-DA Response} = \text{Area of HFPO-DA} * 13\text{C3 HFPO-DA concentration} / \text{area of } 13\text{C3 HFPO-DA}$$

Concentration in waters, ug/L = $(\text{Cex } V_t) / (\text{V}_o)$

Where:

Cex = Concentration measured in sample extract from the target analyte response (ng/mL)

V_t = Volume of total extract (mL)

V_o = Volume of water extracted (mL)

2. Percent Recovery Calculation

$$\text{Spike Recovery} = (\text{SSR}-\text{SR}) / (\text{SA}) \times 100\%$$

Where:

SSR = Spike sample result

SR = Sample result

SA = Spike added

3. Relative Percent Difference Calculation

$$\text{RPD} = (\text{SR} - \text{DR}) / (1/2(\text{SR} + \text{DR})) \times 100$$

Where:

SR = Sample result

DR = Duplicate result

HFPO-DA Analysis Anomalies

Samples FAY-D-5562MATTH-W1-1-031318D (280-107405-1), FAY-D-5562MATTH-W1-1-031318 (280-107405-2), FAY-D-5562MATTH-W1-2-031318 (280-107405-3) and FAY-D-FB-031318 (280-107405-4) were analyzed for Perfluorinated Hydrocarbons (HFPO-DA) in accordance with SOP DV-LC-0012. The samples were prepared on 03/19/2018 and analyzed on 03/26/2018.

Calibration 9 (STD125) has been included in the raw data, but was not used in the Initial Calibration (ICAL).

Reporting limits have been adjusted accordingly for the initial volumes extracted.

No other analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Fluorochemical Characterization of Water Samples Analytical Results

Chemours Sample Identification	TestAmerica Sample Identification	Collection Date/Time	Date Sample Received by TestAmerica	Analysis Date	HFPO-DA# (ug/L**)
FAY-D-5562MATTH-W1-1-031318D	280-107405-1	3/13/2018 9:37	3/15/2018	3/26/2018	0.028

HFPO-DA – hexafluoropropylene oxide dimer acid, analyzed by method DV-LC-0012, Revision 14.

< = less than the stated value

** ug/L – micrograms/liter (parts per billion)

DEFINITIONS:

Reporting Limit (RL) for the procedure is approximately 0.010ug/L.

RESULTS ARE CALCULATED ACCORDING TO THE FOLLOWING CRITERIA:

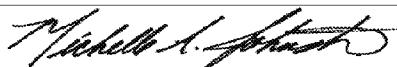
For samples analyzed in duplicate:

If the sample and laboratory duplicate are greater than 5X RL, the relative percent difference (RPD) is less than 20, the average value is reported. If the RPD is greater than 20, the higher value is reported.

If the sample or laboratory duplicate are less than 5X RL, and the absolute difference is less than RL, the average value is reported. If the absolute difference is greater than the RL, the higher value is reported.

Matrix Spike Recoveries:**Acceptable Range: 70%-130%**

TestAmerica Sample ID	Matrix Spike Recoveries
280-107405-2	93%

SUBMITTED BY:

3/27/2018

Michelle A. Johnston, Project Manager

Date

Fluorochemical Characterization of Water Samples Analytical Results

Chemours Sample Identification	TestAmerica Sample Identification	Collection Date/Time	Date Sample Received by TestAmerica	Analysis Date	HFPO-DA# (ug/L**)
FAY-D-5562MATTH-W1-1-031318	280-107405-2	3/13/2018 9:37	3/15/2018	3/26/2018	0.027

HFPO-DA – hexafluoropropylene oxide dimer acid, analyzed by method DV-LC-0012, Revision 14.

< = less than the stated value

** ug/L – micrograms/liter (parts per billion)

DEFINITIONS:

Reporting Limit (RL) for the procedure is approximately 0.010ug/L.

RESULTS ARE CALCULATED ACCORDING TO THE FOLLOWING CRITERIA:

For samples analyzed in duplicate:

If the sample and laboratory duplicate are greater than 5X RL, the relative percent difference (RPD) is less than 20, the average value is reported. If the RPD is greater than 20, the higher value is reported.

If the sample or laboratory duplicate are less than 5X RL, and the absolute difference is less than RL, the average value is reported. If the absolute difference is greater than the RL, the higher value is reported.

Matrix Spike Recoveries:**Acceptable Range: 70%-130%**

TestAmerica Sample ID	Matrix Spike Recoveries
280-107405-2	93%

SUBMITTED BY:

3/27/2018

Michelle A. Johnston, Project Manager

Date

Fluorochemical Characterization of Water Samples Analytical Results

Chemours Sample Identification	TestAmerica Sample Identification	Collection Date/Time	Date Sample Received by TestAmerica	Analysis Date	HFPO-DA# (ug/L**)
FAY-D-5562MATTH-W1-2-031318	280-107405-3	3/13/2018 9:48	3/15/2018	3/26/2018	0.028

HFPO-DA – hexafluoropropylene oxide dimer acid, analyzed by method DV-LC-0012, Revision 14.

< = less than the stated value

** ug/L – micrograms/liter (parts per billion)

DEFINITIONS:

Reporting Limit (RL) for the procedure is approximately 0.010ug/L.

RESULTS ARE CALCULATED ACCORDING TO THE FOLLOWING CRITERIA:

For samples analyzed in duplicate:

If the sample and laboratory duplicate are greater than 5X RL, the relative percent difference (RPD) is less than 20, the average value is reported. If the RPD is greater than 20, the higher value is reported.

If the sample or laboratory duplicate are less than 5X RL, and the absolute difference is less than RL, the average value is reported. If the absolute difference is greater than the RL, the higher value is reported.

Matrix Spike Recoveries:**Acceptable Range: 70%-130%**

TestAmerica Sample ID	Matrix Spike Recoveries
280-107405-2	93%

SUBMITTED BY:

3/27/2018

Michelle A. Johnston, Project Manager

Date

Fluorochemical Characterization of Water Samples Analytical Results

Chemours Sample Identification	TestAmerica Sample Identification	Collection Date/Time	Date Sample Received by TestAmerica	Analysis Date	HFPO-DA# (ug/L**)
FAY-D-FB-031318	280-107405-4	3/13/2018 7:52	3/15/2018	3/26/2018	<0.010

HFPO-DA – hexafluoropropylene oxide dimer acid, analyzed by method DV-LC-0012, Revision 14.

< = less than the stated value

** ug/L – micrograms/liter (parts per billion)

DEFINITIONS:

Reporting Limit (RL) for the procedure is approximately 0.010ug/L.

RESULTS ARE CALCULATED ACCORDING TO THE FOLLOWING CRITERIA:

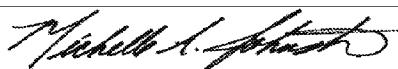
For samples analyzed in duplicate:

If the sample and laboratory duplicate are greater than 5X RL, the relative percent difference (RPD) is less than 20, the average value is reported. If the RPD is greater than 20, the higher value is reported.

If the sample or laboratory duplicate are less than 5X RL, and the absolute difference is less than RL, the average value is reported. If the absolute difference is greater than the RL, the higher value is reported.

Matrix Spike Recoveries:**Acceptable Range: 70%-130%**

TestAmerica Sample ID	Matrix Spike Recoveries
280-107405-2	93%

SUBMITTED BY:

3/27/2018

Michelle A. Johnston, Project Manager

Date

Executive Summary

Client: Chemours Company FC, LLC The

Job Number: 280-107405-1

8321A : HFPO-DA

Lab Sample ID	Client Sample ID	Analyte	Individual Result (ug/L)	Final Result (ug/L)	RL
280-107405-1	FAY-D-5562MATTH-W1-1-031318D	HFPO-DA	0.028	0.028	0.010
280-107405-2	FAY-D-5562MATTH-W1-1-031318	HFPO-DA	0.028	0.027	0.010
280-107405-2 DU	FAY-D-5562MATTH-W1-1-031318	HFPO-DA	0.026	0.010	
280-107405-3	FAY-D-5562MATTH-W1-2-031318	HFPO-DA	0.028	0.028	0.010
280-107405-4	FAY-D-FB-031318	HFPO-DA	<0.010	<0.010	0.010

(a) Method 8321A

(b) DUP or REP indicates a laboratory duplicate.

(c) If the sample and laboratory duplicate are both greater than 5X the RL and the relative percent difference (RPD) is less than 20, the average value is reported. If the RPD is greater than 20, the higher of the sample and laboratory duplicate value is reported. If the sample and/or laboratory duplicate are less than 5X the RL, and the absolute difference between the sample and laboratory duplicate is less than the RL, the average value is reported. If the absolute difference is greater than the RL, the higher of the sample and laboratory duplicate value is reported. If either the sample or the duplicate result is greater than or equal to the RL and the other is less than the RL, then the higher of the two is reported.

(d) Moisture Determined by ASTM D2216.

(e) Reporting Limit (RL) = The concentration equivalent to the low calibration standard.

Detection Summary

Client: Chemours Company FC, LLC The
Project/Site: FAY-2018 Residential Sampling

TestAmerica Job ID: 280-107405-1

Client Sample ID: FAY-D-5562MATTH-W1-1-031318D

Lab Sample ID: 280-107405-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
HFPO-DA	0.028		0.010		ug/L	1		8321A	Total/NA

Client Sample ID: FAY-D-5562MATTH-W1-1-031318

Lab Sample ID: 280-107405-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
HFPO-DA	0.028		0.010		ug/L	1		8321A	Total/NA

Client Sample ID: FAY-D-5562MATTH-W1-2-031318

Lab Sample ID: 280-107405-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
HFPO-DA	0.028		0.010		ug/L	1		8321A	Total/NA

Client Sample ID: FAY-D-FB-031318

Lab Sample ID: 280-107405-4

No Detections.

This Detection Summary does not include radiochemical test results.

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Client Sample Results

Client: Chemours Company FC, LLC The
Project/Site: FAY-2018 Residential Sampling

TestAmerica Job ID: 280-107405-1

Client Sample ID: FAY-D-5562MATTH-W1-1-031318D

Lab Sample ID: 280-107405-1

Date Collected: 03/13/18 09:37

Matrix: Water

Date Received: 03/15/18 09:15

Method: 8321A - HFPO-DA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	0.028		0.010		ug/L		03/19/18 20:12	03/26/18 10:40	1
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C3 HFPO-DA	94		50 - 200				03/19/18 20:12	03/26/18 10:40	1

Client Sample Results

Client: Chemours Company FC, LLC The
Project/Site: FAY-2018 Residential Sampling

TestAmerica Job ID: 280-107405-1

Client Sample ID: FAY-D-5562MATTH-W1-1-031318

Lab Sample ID: 280-107405-2

Date Collected: 03/13/18 09:37

Matrix: Water

Date Received: 03/15/18 09:15

Method: 8321A - HFPO-DA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	0.028		0.010		ug/L		03/19/18 20:12	03/26/18 10:47	1
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C3 HFPO-DA	92		50 - 200				03/19/18 20:12	03/26/18 10:47	1

Client Sample Results

Client: Chemours Company FC, LLC The
Project/Site: FAY-2018 Residential Sampling

TestAmerica Job ID: 280-107405-1

Client Sample ID: FAY-D-5562MATTH-W1-2-031318

Lab Sample ID: 280-107405-3

Date Collected: 03/13/18 09:48

Matrix: Water

Date Received: 03/15/18 09:15

Method: 8321A - HFPO-DA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	0.028		0.010		ug/L		03/19/18 20:12	03/26/18 10:57	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac

13C3 HFPO-DA

94

50 - 200

03/19/18 20:12

03/26/18 10:57

1

TestAmerica Denver

Client Sample Results

Client: Chemours Company FC, LLC The
Project/Site: FAY-2018 Residential Sampling

TestAmerica Job ID: 280-107405-1

Client Sample ID: FAY-D-FB-031318

Lab Sample ID: 280-107405-4

Date Collected: 03/13/18 07:52

Matrix: Water

Date Received: 03/15/18 09:15

Method: 8321A - HFPO-DA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	<0.010		0.010		ug/L		03/19/18 20:12	03/26/18 11:00	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	94		50 - 200				03/19/18 20:12	03/26/18 11:00	1

Default Detection Limits

Client: Chemours Company FC, LLC The
Project/Site: FAY-2018 Residential Sampling

TestAmerica Job ID: 280-107405-1

Method: 8321A - HFPO-DA

Prep: 3535

Analyte	RL	MDL	Units	Method
HFPO-DA	0.010	0.0051	ug/L	8321A

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Surrogate Summary

Client: Chemours Company FC, LLC The
Project/Site: FAY-2018 Residential Sampling

TestAmerica Job ID: 280-107405-1

Method: 8321A - HFPO-DA

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

HFPODA (50-200)

Lab Sample ID	Client Sample ID	HFPODA (50-200)
280-107405-1	FAY-D-5562MATTH-W1-1-0313	94
280-107405-2	FAY-D-5562MATTH-W1-1-0313	92
280-107405-2 DU	FAY-D-5562MATTH-W1-1-0313	95
280-107405-2 MS	FAY-D-5562MATTH-W1-1-0313	93
280-107405-3	FAY-D-5562MATTH-W1-2-0313	94
280-107405-4	FAY-D-FB-031318	94
DLCK 280-404345/13	Lab Control Sample	104
LCS 280-408382/2-A	Lab Control Sample	92
LCSD 280-408382/3-A	Lab Control Sample Dup	93
LLCS 280-408382/4-A	Lab Control Sample	93
MB 280-408382/1-A	Method Blank	90

Surrogate Legend

HFPODA = 13C3 HFPO-DA

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QC Sample Results

Client: Chemours Company FC, LLC The
Project/Site: FAY-2018 Residential Sampling

TestAmerica Job ID: 280-107405-1

Method: 8321A - HFPO-DA

Lab Sample ID: DLCK 280-404345/13

Matrix: Water

Analysis Batch: 404345

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	DLCK Result	DLCK Qualifier	Unit	D	% Rec.	% Rec. Limits
HFPO-DA	0.250	<0.50		ug/L		90	70 - 130
Surrogate	DLCK %Recovery	DLCK Qualifier	Limits				
13C3 HFPO-DA	104		50 - 200				

Lab Sample ID: MB 280-408382/1-A

Matrix: Water

Analysis Batch: 409067

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 408382

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	<0.010		0.010		ug/L		03/19/18 20:12	03/26/18 10:18	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	90		50 - 200				03/19/18 20:12	03/26/18 10:18	1

Lab Sample ID: LCS 280-408382/2-A

Matrix: Water

Analysis Batch: 409067

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 408382

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec.	% Rec. Limits
HFPO-DA	0.200	0.187		ug/L		94	70 - 130
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
13C3 HFPO-DA	92		50 - 200				

Lab Sample ID: LCSD 280-408382/3-A

Matrix: Water

Analysis Batch: 409067

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 408382

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	% Rec.	% Rec. Limits	RPD	Limit
HFPO-DA	0.200	0.179		ug/L		90	70 - 130	4	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
13C3 HFPO-DA	93		50 - 200						

Lab Sample ID: LLCS 280-408382/4-A

Matrix: Water

Analysis Batch: 409067

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 408382

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	% Rec.	% Rec. Limits
HFPO-DA	0.0200	0.0201		ug/L		101	70 - 130
Surrogate	LLCS %Recovery	LLCS Qualifier	Limits				
13C3 HFPO-DA	93		50 - 200				

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QC Sample Results

Client: Chemours Company FC, LLC The
Project/Site: FAY-2018 Residential Sampling

TestAmerica Job ID: 280-107405-1

Method: 8321A - HFPO-DA (Continued)

Lab Sample ID: 280-107405-2 MS				Client Sample ID: FAY-D-5562MATTH-W1-1-031318					
Analyte	Sample	Sample	Spike	MS	MS	Unit	D	% Rec.	Prep Type: Total/NA
	Result	Qualifier	Added	Result	Qualifier				Prep Batch: 408382
HFPO-DA	0.028		0.202	0.215		ug/L	93	70 - 130	% Rec. Limits
Surrogate									
13C3 HFPO-DA	93			50 - 200					
Lab Sample ID: 280-107405-2 DU				Client Sample ID: FAY-D-5562MATTH-W1-1-031318					
Analyte	Sample	Sample	Spike	DU	DU	Unit	D	RPD	Prep Type: Total/NA
	Result	Qualifier	Added	Result	Qualifier				Prep Batch: 408382
HFPO-DA	0.028		0.202	0.0263		ug/L	5	20	RPD Limit
Surrogate									
13C3 HFPO-DA	95			50 - 200					

TestAmerica Denver

QC Association Summary

Client: Chemours Company FC, LLC The
Project/Site: FAY-2018 Residential Sampling

TestAmerica Job ID: 280-107405-1

LCMS

Analysis Batch: 404345

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
DLCK 280-404345/13	Lab Control Sample	Total/NA	Water	8321A	

Prep Batch: 408382

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-107405-1	FAY-D-5562MATTH-W1-1-031318D	Total/NA	Water	3535	
280-107405-2	FAY-D-5562MATTH-W1-1-031318	Total/NA	Water	3535	
280-107405-3	FAY-D-5562MATTH-W1-2-031318	Total/NA	Water	3535	
280-107405-4	FAY-D-FB-031318	Total/NA	Water	3535	
MB 280-408382/1-A	Method Blank	Total/NA	Water	3535	
LCS 280-408382/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 280-408382/3-A	Lab Control Sample Dup	Total/NA	Water	3535	
LLCS 280-408382/4-A	Lab Control Sample	Total/NA	Water	3535	
280-107405-2 MS	FAY-D-5562MATTH-W1-1-031318	Total/NA	Water	3535	
280-107405-2 DU	FAY-D-5562MATTH-W1-1-031318	Total/NA	Water	3535	

Analysis Batch: 409067

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-107405-1	FAY-D-5562MATTH-W1-1-031318D	Total/NA	Water	8321A	408382
280-107405-2	FAY-D-5562MATTH-W1-1-031318	Total/NA	Water	8321A	408382
280-107405-3	FAY-D-5562MATTH-W1-2-031318	Total/NA	Water	8321A	408382
280-107405-4	FAY-D-FB-031318	Total/NA	Water	8321A	408382
MB 280-408382/1-A	Method Blank	Total/NA	Water	8321A	408382
LCS 280-408382/2-A	Lab Control Sample	Total/NA	Water	8321A	408382
LCSD 280-408382/3-A	Lab Control Sample Dup	Total/NA	Water	8321A	408382
LLCS 280-408382/4-A	Lab Control Sample	Total/NA	Water	8321A	408382
280-107405-2 MS	FAY-D-5562MATTH-W1-1-031318	Total/NA	Water	8321A	408382
280-107405-2 DU	FAY-D-5562MATTH-W1-1-031318	Total/NA	Water	8321A	408382

TestAmerica Denver

Lab Chronicle

Client: Chemours Company FC, LLC The
Project/Site: FAY-2018 Residential Sampling

TestAmerica Job ID: 280-107405-1

Client Sample ID: FAY-D-5562MATTH-W1-1-031318D

Lab Sample ID: 280-107405-1

Date Collected: 03/13/18 09:37

Matrix: Water

Date Received: 03/15/18 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			255.6 mL	5 mL	408382	03/19/18 20:12	CDC	TAL DEN
Total/NA	Analysis	8321A		1			409067	03/26/18 10:40	AGCM	TAL DEN

Client Sample ID: FAY-D-5562MATTH-W1-1-031318

Lab Sample ID: 280-107405-2

Date Collected: 03/13/18 09:37

Matrix: Water

Date Received: 03/15/18 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			241.1 mL	5 mL	408382	03/19/18 20:12	CDC	TAL DEN
Total/NA	Analysis	8321A		1			409067	03/26/18 10:47	AGCM	TAL DEN

Client Sample ID: FAY-D-5562MATTH-W1-2-031318

Lab Sample ID: 280-107405-3

Date Collected: 03/13/18 09:48

Matrix: Water

Date Received: 03/15/18 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			268.3 mL	5 mL	408382	03/19/18 20:12	CDC	TAL DEN
Total/NA	Analysis	8321A		1			409067	03/26/18 10:57	AGCM	TAL DEN

Client Sample ID: FAY-D-FB-031318

Lab Sample ID: 280-107405-4

Date Collected: 03/13/18 07:52

Matrix: Water

Date Received: 03/15/18 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			267 mL	5 mL	408382	03/19/18 20:12	CDC	TAL DEN
Total/NA	Analysis	8321A		1			409067	03/26/18 11:00	AGCM	TAL DEN

Client Sample ID: Method Blank

Lab Sample ID: MB 280-408382/1-A

Date Collected: N/A

Matrix: Water

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			250 mL	5 mL	408382	03/19/18 20:12	CDC	TAL DEN
Total/NA	Analysis	8321A		1			409067	03/26/18 10:18	AGCM	TAL DEN

Client Sample ID: Lab Control Sample

Lab Sample ID: DLCK 280-404345/13

Date Collected: N/A

Matrix: Water

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8321A		1			404345	02/08/18 13:38	AGCM	TAL DEN

TestAmerica Denver

Lab Chronicle

Client: Chemours Company FC, LLC The
Project/Site: FAY-2018 Residential Sampling

TestAmerica Job ID: 280-107405-1

Client Sample ID: Lab Control Sample

Lab Sample ID: LCS 280-408382/2-A

Date Collected: N/A

Matrix: Water

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			250 mL	5 mL	408382	03/19/18 20:12	CDC	TAL DEN
Total/NA	Analysis	8321A		1			409067	03/26/18 10:21	AGCM	TAL DEN

Client Sample ID: Lab Control Sample Dup

Lab Sample ID: LCSD 280-408382/3-A

Date Collected: N/A

Matrix: Water

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			250 mL	5 mL	408382	03/19/18 20:12	CDC	TAL DEN
Total/NA	Analysis	8321A		1			409067	03/26/18 10:24	AGCM	TAL DEN

Client Sample ID: Lab Control Sample

Lab Sample ID: LLCS 280-408382/4-A

Date Collected: N/A

Matrix: Water

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			250 mL	5 mL	408382	03/19/18 20:12	CDC	TAL DEN
Total/NA	Analysis	8321A		1			409067	03/26/18 10:27	AGCM	TAL DEN

Client Sample ID: FAY-D-5562MATTH-W1-1-031318

Lab Sample ID: 280-107405-2 MS

Date Collected: 03/13/18 09:37

Matrix: Water

Date Received: 03/15/18 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			248 mL	5 mL	408382	03/19/18 20:12	CDC	TAL DEN
Total/NA	Analysis	8321A		1			409067	03/26/18 10:53	AGCM	TAL DEN

Client Sample ID: FAY-D-5562MATTH-W1-1-031318

Lab Sample ID: 280-107405-2 DU

Date Collected: 03/13/18 09:37

Matrix: Water

Date Received: 03/15/18 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			257.3 mL	5 mL	408382	03/19/18 20:12	CDC	TAL DEN
Total/NA	Analysis	8321A		1			409067	03/26/18 10:50	AGCM	TAL DEN

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TestAmerica Denver

Accreditation/Certification Summary

Client: Chemours Company FC, LLC The
Project/Site: FAY-2018 Residential Sampling

TestAmerica Job ID: 280-107405-1

Laboratory: TestAmerica Denver

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
North Carolina (WW/SW)	State Program	4	358	12-31-18

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
8321A	3535	Water	HFPO-DA

TestAmerica Denver

Method Summary

Client: Chemours Company FC, LLC The
Project/Site: FAY-2018 Residential Sampling

TestAmerica Job ID: 280-107405-1

Method	Method Description	Protocol	Laboratory
8321A	HFPO-DA	SW846	TAL DEN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TestAmerica Denver

Sample Summary

Client: Chemours Company FC, LLC The
Project/Site: FAY-2018 Residential Sampling

TestAmerica Job ID: 280-107405-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-107405-1	FAY-D-5562MATTH-W1-1-031318D	Water	03/13/18 09:37	03/15/18 09:15
280-107405-2	FAY-D-5562MATTH-W1-1-031318	Water	03/13/18 09:37	03/15/18 09:15
280-107405-3	FAY-D-5562MATTH-W1-2-031318	Water	03/13/18 09:48	03/15/18 09:15
280-107405-4	FAY-D-FB-031318	Water	03/13/18 07:52	03/15/18 09:15

TestAmerica Denver

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica DenverJob No.: 280-107405-1

SDG No.: _____

Instrument ID: LC_LCMS7Analysis Batch Number: 390728Lab Sample ID: STD001 280-390728/3 IC

Client Sample ID: _____

Date Analyzed: 10/10/17 09:35Lab File ID: hfpo717J10026.d GC Column: Synergi Hydro ID: _____

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
HFPO-DA	0.89	Baseline	meyera	10/10/17 11:50

8321A

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Denver

Job No.: 280-107405-1

SDG No.:

Instrument ID: LC_LCMS7

Analysis Batch Number: 404345

Lab Sample ID: STD001 280-404345/3 IC

Client Sample ID: _____

Date Analyzed: 02/08/18 13:05

Lab File ID: hfpo718B08034.d GC Column: Synergi Hydro ID: _____

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
HFPO-DA	1.06	Assign Peak	meyera	02/08/18 15:19

Lab Sample ID: STD002 280-404345/4 IC

Client Sample ID: _____

Date Analyzed: 02/08/18 13:08

Lab File ID: hfpo718B08035.d GC Column: Synergi Hydro ID: _____

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
HFPO-DA	1.06	Baseline	meyera	02/08/18 15:19

Lab Sample ID: DLCK 280-404345/13

Client Sample ID: _____

Date Analyzed: 02/08/18 13:38

Lab File ID: hfpo718B08044.d GC Column: Synergi Hydro ID: _____

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
HFPO-DA	1.06	Baseline	meyera	02/08/18 15:20

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Denver

Job No.: 280-107405-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
HFPO I.S._00010	03/06/19	03/06/18	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	13C3 HFPO-DA_00010	1 mL	13C3 HFPO-DA	0.5 ug/mL
							13C3 HFPO-DA (IS)	0.5 ug/mL
.13C3 HFPO-DA_00010	03/06/19	Wellington Laboratories, Lot M3HFPOADA0817		(Purchased Reagent)		13C3 HFPO-DA	50 ug/mL	
HFPO Spike_00005	03/07/19	03/07/18	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO-DA_00005	1 mL	HFPO-DA	0.5 ug/mL
							HFPO-DA	50 ug/mL
HFPO_CAL-0_00032	02/22/18	02/08/18	PFC Dill_Solvent, Lot 00016	1 mL	HFPO I.S._00008	20 uL	13C3 HFPO-DA	10 ug/L
							13C3 HFPO-DA (IS)	0.5 ug/mL
.HFPO I.S._00008	12/12/18	01/30/18	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	13C3 HFPO-DA_00008	1 mL	13C3 HFPO-DA	0.5 ug/mL
..13C3 HFPO-DA_00008	01/30/19	Wellington Laboratories, Lot M3HFPOADA0817		(Purchased Reagent)		13C3 HFPO-DA	50 ug/mL	
HFPO_CAL-1_00031	10/24/17	10/10/17	80:20 Methanol : H2O, Lot 00016	1 mL	HFPO I.S._00004	20 uL	13C3 HFPO-DA	10 ug/L
							13C3 HFPO-DA (IS)	0.5 ug/mL
.HFPO I.S._00004	08/28/18	08/28/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	13C3 HFPO-DA_00004	1 mL	HFPO-DA	0.25 ug/L
..13C3 HFPO-DA_00004	08/28/18	Wellington Laboratories, Lot M3HFPOADA0616		(Purchased Reagent)		13C3 HFPO-DA	0.5 ug/mL	
.HFPO Spike_00003	01/11/18	01/10/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO-DA_00003	1 mL	13C3 HFPO-DA (IS)	50 ug/mL
..HFPO-DA_00003	12/16/18	Wellington Laboratories, Lot HFPOADA0213		(Purchased Reagent)		HFPO-DA	HFPO-DA	0.5 ug/mL
HFPO_CAL-1_00032	02/22/18	02/08/18	80:20 Methanol : H2O, Lot 00016	1 mL	HFPO I.S._00008	20 uL	13C3 HFPO-DA	0.5 ug/mL
							13C3 HFPO-DA (IS)	0.25 ug/L
.HFPO I.S._00008	12/12/18	01/30/18	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO-DA_00008	1 mL	HFPO-DA	0.5 ug/mL
..13C3 HFPO-DA_00008	01/30/19	Wellington Laboratories, Lot M3HFPOADA0817		(Purchased Reagent)		13C3 HFPO-DA	13C3 HFPO-DA (IS)	50 ug/mL
.HFPO Spike_00004	10/30/18	10/30/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO-DA_00004	1 mL	HFPO-DA	0.5 ug/mL
..HFPO-DA_00004	07/13/20	Wellington Laboratories, Lot HFPOADA0717		(Purchased Reagent)		HFPO-DA	HFPO-DA	50 ug/mL
HFPO_CAL-2_00032	10/24/17	10/10/17	80:20 Methanol : H2O, Lot 00016	1 mL	HFPO I.S._00004	20 uL	13C3 HFPO-DA	10 ug/L
							13C3 HFPO-DA (IS)	0.5 ug/mL
.HFPO I.S._00004	08/28/18	08/28/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO-DA_00004	1 mL	HFPO-DA	0.5 ug/mL
..HFPO-DA_00004	13C3 HFPO-DA (IS)	13C3 HFPO-DA (IS)	13C3 HFPO-DA (IS)	13C3 HFPO-DA (IS)	13C3 HFPO-DA (IS)	13C3 HFPO-DA (IS)	13C3 HFPO-DA (IS)	0.5 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Denver

Job No.: 280-107405-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration		
					Reagent ID	Volume Added				
..13C3 HFPO-DA_00004	08/28/18		Wellington Laboratories, Lot M3HFPOADA0616		(Purchased Reagent)		13C3 HFPO-DA	50 ug/mL		
.HFPO Spike_00003	01/11/18	01/10/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO-DA_00003	1 mL	HFPO-DA	0.5 ug/mL		
..HFPO-DA_00003	12/16/18		Wellington Laboratories, Lot HFPOADA0213		(Purchased Reagent)		HFPO-DA	50 ug/mL		
HFPO_CAL-2_00033	02/22/18	02/08/18	80:20 Methanol : H ₂ O, Lot 00016	1 mL	HFPO I.S._00008	20 uL	13C3 HFPO-DA	10 ug/L		
					HFPO Spike_00004	1 uL	13C3 HFPO-DA (IS)	10 ug/L		
.HFPO I.S._00008	12/12/18	01/30/18	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	13C3 HFPO-DA_00008	1 mL	HFPO-DA	0.5 ug/mL		
							13C3 HFPO-DA (IS)	0.5 ug/mL		
..13C3 HFPO-DA_00008	01/30/19		Wellington Laboratories, Lot M3HFPOADA0817		(Purchased Reagent)		13C3 HFPO-DA	50 ug/mL		
							13C3 HFPO-DA (IS)	50 ug/mL		
.HFPO Spike_00004	10/30/18	10/30/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO-DA_00004	1 mL	HFPO-DA	0.5 ug/mL		
..HFPO-DA_00004	07/13/20		Wellington Laboratories, Lot HFPOADA0717		(Purchased Reagent)		HFPO-DA	50 ug/mL		
HFPO_CAL-3_00031	10/24/17	10/10/17	80:20 Methanol : H ₂ O, Lot 00016	1 mL	HFPO I.S._00004	20 uL	13C3 HFPO-DA	10 ug/L		
					HFPO Spike_00003	2 uL	13C3 HFPO-DA (IS)	10 ug/L		
.HFPO I.S._00004	08/28/18	08/28/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	13C3 HFPO-DA_00004	1 mL	HFPO-DA	0.5 ug/mL		
							13C3 HFPO-DA (IS)	0.5 ug/mL		
..13C3 HFPO-DA_00004	08/28/18		Wellington Laboratories, Lot M3HFPOADA0616		(Purchased Reagent)		13C3 HFPO-DA	50 ug/mL		
							13C3 HFPO-DA (IS)	50 ug/mL		
.HFPO Spike_00003	01/11/18	01/10/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO-DA_00003	1 mL	HFPO-DA	0.5 ug/mL		
..HFPO-DA_00003	12/16/18		Wellington Laboratories, Lot HFPOADA0213		(Purchased Reagent)		HFPO-DA	50 ug/mL		
HFPO_CAL-3_00032	02/22/18	02/08/18	80:20 Methanol : H ₂ O, Lot 00016	1 mL	HFPO I.S._00008	20 uL	13C3 HFPO-DA	10 ug/L		
					HFPO Spike_00004	2 uL	13C3 HFPO-DA (IS)	10 ug/L		
.HFPO I.S._00008	12/12/18	01/30/18	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	13C3 HFPO-DA_00008	1 mL	HFPO-DA	0.5 ug/mL		
							13C3 HFPO-DA (IS)	0.5 ug/mL		
..13C3 HFPO-DA_00008	01/30/19		Wellington Laboratories, Lot M3HFPOADA0817		(Purchased Reagent)		13C3 HFPO-DA	50 ug/mL		
							13C3 HFPO-DA (IS)	50 ug/mL		
.HFPO Spike_00004	10/30/18	10/30/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO-DA_00004	1 mL	HFPO-DA	0.5 ug/mL		
..HFPO-DA_00004	07/13/20		Wellington Laboratories, Lot HFPOADA0717		(Purchased Reagent)		HFPO-DA	50 ug/mL		
HFPO_CAL-4_00031	10/24/17	10/10/17	80:20 Methanol : H ₂ O, Lot 00016	1 mL	HFPO I.S._00004	20 uL	13C3 HFPO-DA	10 ug/L		
							13C3 HFPO-DA (IS)	10 ug/L		

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Denver

Job No.: 280-107405-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
.HFPO I.S._00004	08/28/18	08/28/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO Spike_00003	4 uL	HFPO-DA	2 ug/L
					13C3 HFPO-DA_00004	1 mL	13C3 HFPO-DA	0.5 ug/mL
..13C3 HFPO-DA_00004	08/28/18		Wellington Laboratories, Lot M3HFPOADA0616		(Purchased Reagent)		13C3 HFPO-DA (IS)	0.5 ug/mL
							13C3 HFPO-DA	50 ug/mL
.HFPO Spike_00003	01/11/18	01/10/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO-DA_00003	1 mL	HFPO-DA	0.5 ug/mL
..HFPO-DA_00003	12/16/18		Wellington Laboratories, Lot HFPOADA0213		(Purchased Reagent)		HFPO-DA	50 ug/mL
HFPO_CAL-4_00032	02/22/18	02/08/18	80:20 Methanol : H ₂ O, Lot 00016	1 mL	HFPO I.S._00008	20 uL	13C3 HFPO-DA	10 ug/L
							13C3 HFPO-DA (IS)	10 ug/L
.HFPO I.S._00008	12/12/18	01/30/18	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO Spike_00004	4 uL	HFPO-DA	2 ug/L
							13C3 HFPO-DA	0.5 ug/mL
..13C3 HFPO-DA_00008	01/30/19		Wellington Laboratories, Lot M3HFPOADA0817		(Purchased Reagent)		13C3 HFPO-DA (IS)	0.5 ug/mL
							13C3 HFPO-DA	50 ug/mL
.HFPO Spike_00004	10/30/18	10/30/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO-DA_00004	1 mL	HFPO-DA	0.5 ug/mL
..HFPO-DA_00004	07/13/20		Wellington Laboratories, Lot HFPOADA0717		(Purchased Reagent)		HFPO-DA	50 ug/mL
HFPO_CAL-5_00070	10/24/17	10/10/17	80:20 Methanol : H ₂ O, Lot 00016	1 mL	HFPO I.S._00004	20 uL	13C3 HFPO-DA	10 ug/L
							13C3 HFPO-DA (IS)	10 ug/L
.HFPO I.S._00004	08/28/18	08/28/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO Spike_00003	10 uL	HFPO-DA	5 ug/L
							13C3 HFPO-DA	0.5 ug/mL
..13C3 HFPO-DA_00004	08/28/18		Wellington Laboratories, Lot M3HFPOADA0616		(Purchased Reagent)		13C3 HFPO-DA (IS)	0.5 ug/mL
							13C3 HFPO-DA	50 ug/mL
.HFPO Spike_00003	01/11/18	01/10/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO-DA_00003	1 mL	HFPO-DA	0.5 ug/mL
..HFPO-DA_00003	12/16/18		Wellington Laboratories, Lot HFPOADA0213		(Purchased Reagent)		HFPO-DA	50 ug/mL
HFPO_CAL-5_00080	02/22/18	02/08/18	80:20 Methanol : H ₂ O, Lot 00016	1 mL	HFPO I.S._00008	20 uL	13C3 HFPO-DA	10 ug/L
							13C3 HFPO-DA (IS)	10 ug/L
.HFPO I.S._00008	12/12/18	01/30/18	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO Spike_00004	10 uL	HFPO-DA	5 ug/L
							13C3 HFPO-DA	0.5 ug/mL
..13C3 HFPO-DA_00008	01/30/19		Wellington Laboratories, Lot M3HFPOADA0817		(Purchased Reagent)		13C3 HFPO-DA (IS)	0.5 ug/mL
							13C3 HFPO-DA	50 ug/mL
.HFPO Spike_00004	10/30/18	10/30/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO-DA_00004	1 mL	HFPO-DA	0.5 ug/mL
..HFPO-DA_00004	07/13/20		Wellington Laboratories, Lot HFPOADA0717		(Purchased Reagent)		HFPO-DA	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Denver

Job No.: 280-107405-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
HFPO_CAL-5_00084	04/02/18	03/19/18	80:20 Methanol : H ₂ O, Lot 00016	1 mL	HFPO I.S._00010	20 uL	13C3 HFPO-DA	10 ug/L
					HFPO Spike_00005	10 uL	HFPO-DA	5 ug/L
.HFPO I.S._00010	03/06/19	03/06/18	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	13C3 HFPO-DA_00010	1 mL	13C3 HFPO-DA	0.5 ug/mL
..13C3 HFPO-DA_00010	03/06/19		Wellington Laboratories, Lot M3HFPOADA0817		(Purchased Reagent)		13C3 HFPO-DA	50 ug/mL
.HFPO Spike_00005	03/07/19	03/07/18	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO-DA_00005	1 mL	HFPO-DA	0.5 ug/mL
..HFPO-DA_00005	03/07/19		Wellington Laboratories, Lot HFPOADA0717		(Purchased Reagent)		HFPO-DA	50 ug/mL
HFPO_CAL-6_00070	10/24/17	10/10/17	80:20 Methanol : H ₂ O, Lot 00016	1 mL	HFPO I.S._00004	20 uL	13C3 HFPO-DA	10 ug/L
							13C3 HFPO-DA (IS)	10 ug/L
.HFPO I.S._00004	08/28/18	08/28/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	13C3 HFPO-DA_00004	1 mL	HFPO-DA	10 ug/L
							13C3 HFPO-DA (IS)	0.5 ug/mL
..13C3 HFPO-DA_00004	08/28/18		Wellington Laboratories, Lot M3HFPOADA0616		(Purchased Reagent)		13C3 HFPO-DA	50 ug/mL
.HFPO Spike_00003	01/11/18	01/10/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO-DA_00003	1 mL	HFPO-DA	0.5 ug/mL
..HFPO-DA_00003	12/16/18		Wellington Laboratories, Lot HFPOADA0213		(Purchased Reagent)		HFPO-DA	50 ug/mL
HFPO_CAL-6_00080	02/22/18	02/08/18	80:20 Methanol : H ₂ O, Lot 00016	1 mL	HFPO I.S._00008	20 uL	13C3 HFPO-DA	10 ug/L
							13C3 HFPO-DA (IS)	10 ug/L
.HFPO I.S._00008	12/12/18	01/30/18	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	13C3 HFPO-DA_00008	1 mL	HFPO-DA	10 ug/L
							13C3 HFPO-DA (IS)	0.5 ug/mL
..13C3 HFPO-DA_00008	01/30/19		Wellington Laboratories, Lot M3HFPOADA0817		(Purchased Reagent)		13C3 HFPO-DA	50 ug/mL
.HFPO Spike_00004	10/30/18	10/30/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO-DA_00004	1 mL	HFPO-DA	0.5 ug/mL
..HFPO-DA_00004	07/13/20		Wellington Laboratories, Lot HFPOADA0717		(Purchased Reagent)		HFPO-DA	50 ug/mL
HFPO_CAL-6_00084	04/02/18	03/19/18	80:20 Methanol : H ₂ O, Lot 00016	1 mL	HFPO I.S._00010	20 uL	13C3 HFPO-DA	10 ug/L
							HFPO-DA	10 ug/L
.HFPO I.S._00010	03/06/19	03/06/18	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	13C3 HFPO-DA_00010	1 mL	13C3 HFPO-DA	0.5 ug/mL
..13C3 HFPO-DA_00010	03/06/19		Wellington Laboratories, Lot M3HFPOADA0817		(Purchased Reagent)		13C3 HFPO-DA	50 ug/mL
.HFPO Spike_00005	03/07/19	03/07/18	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO-DA_00005	1 mL	HFPO-DA	0.5 ug/mL
..HFPO-DA_00005	03/07/19		Wellington Laboratories, Lot HFPOADA0717		(Purchased Reagent)		HFPO-DA	50 ug/mL
HFPO_CAL-7_00031	10/24/17	10/10/17	80:20 Methanol : H ₂ O, Lot 00016	1 mL	HFPO I.S._00004	20 uL	13C3 HFPO-DA	10 ug/L

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Denver

Job No.: 280-107405-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration			
					Reagent ID	Volume Added					
.HFPO_I.S._00004	08/28/18	08/28/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	13C3 HFPO-DA_00004	1 mL	13C3 HFPO-DA (IS)	10 ug/L			
							HFPO-DA	25 ug/L			
..13C3 HFPO-DA_00004	08/28/18	Wellington Laboratories, Lot M3HFPOADA0616			(Purchased Reagent)		13C3 HFPO-DA	0.5 ug/mL			
							13C3 HFPO-DA (IS)	0.5 ug/mL			
.HFPO_Spike_00003	01/11/18	01/10/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO-DA_00003	1 mL	HFPO-DA	50 ug/mL			
..HFPO-DA_00003	12/16/18	Wellington Laboratories, Lot HFPOADA0213			(Purchased Reagent)		HFPO-DA	50 ug/mL			
HFPO_CAL-7_00032	02/22/18	02/08/18	80:20 Methanol : H2O, Lot 00016	1 mL	HFPO_I.S._00008	20 uL	13C3 HFPO-DA	10 ug/L			
							13C3 HFPO-DA (IS)	10 ug/L			
.HFPO_I.S._00008	12/12/18	01/30/18	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	13C3 HFPO-DA_00008	1 mL	HFPO-DA	25 ug/L			
							13C3 HFPO-DA	0.5 ug/mL			
..13C3 HFPO-DA_00008	01/30/19	Wellington Laboratories, Lot M3HFPOADA0817			(Purchased Reagent)		13C3 HFPO-DA (IS)	0.5 ug/mL			
							13C3 HFPO-DA	50 ug/mL			
.HFPO_Spike_00004	10/30/18	10/30/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO-DA_00004	1 mL	HFPO-DA	50 ug/mL			
..HFPO-DA_00004	07/13/20	Wellington Laboratories, Lot HFPOADA0717			(Purchased Reagent)		HFPO-DA	0.5 ug/mL			
HFPO_CAL-8_00031	10/24/17	10/10/17	80:20 Methanol : H2O, Lot 00016	1 mL	HFPO_I.S._00004	20 uL	13C3 HFPO-DA	50 ug/mL			
							13C3 HFPO-DA (IS)	10 ug/L			
.HFPO_I.S._00004	08/28/18	08/28/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	13C3 HFPO-DA_00004	1 mL	HFPO-DA	0.5 ug/mL			
							13C3 HFPO-DA (IS)	0.5 ug/mL			
..13C3 HFPO-DA_00004	08/28/18	Wellington Laboratories, Lot M3HFPOADA0616			(Purchased Reagent)		13C3 HFPO-DA	50 ug/mL			
							13C3 HFPO-DA (IS)	50 ug/mL			
.HFPO_Spike_00003	01/11/18	01/10/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO-DA_00003	1 mL	HFPO-DA	0.5 ug/mL			
..HFPO-DA_00003	12/16/18	Wellington Laboratories, Lot HFPOADA0213			(Purchased Reagent)		HFPO-DA	0.5 ug/mL			
HFPO_CAL-8_00032	02/22/18	02/08/18	80:20 Methanol : H2O, Lot 00016	1 mL	HFPO_I.S._00008	20 uL	13C3 HFPO-DA	50 ug/mL			
							13C3 HFPO-DA (IS)	10 ug/L			
.HFPO_I.S._00008	12/12/18	01/30/18	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	13C3 HFPO-DA_00008	1 mL	HFPO-DA	0.5 ug/mL			
							13C3 HFPO-DA (IS)	0.5 ug/mL			
..13C3 HFPO-DA_00008	01/30/19	Wellington Laboratories, Lot M3HFPOADA0817			(Purchased Reagent)		13C3 HFPO-DA	50 ug/mL			
							13C3 HFPO-DA (IS)	50 ug/mL			
.HFPO_Spike_00004	10/30/18	10/30/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO-DA_00004	1 mL	HFPO-DA	0.5 ug/mL			

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Denver

Job No.: 280-107405-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration		
					Reagent ID	Volume Added				
..HFPO-DA_00004	07/13/20	Wellington Laboratories, Lot HFPODA0717		(Purchased Reagent)		HFPO-DA	50 ug/mL			
HFPO_CAL-9_00001	02/22/18	02/08/18	80:20 Methanol : H ₂ O, Lot 00016	1 mL	HFPO I.S._00008	20 uL	13C3 HFPO-DA	10 ug/L		
					HFPO Spike_00004	200 uL	13C3 HFPO-DA (IS)	100 ug/L		
.HFPO_I.S._00008	12/12/18	01/30/18	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	13C3 HFPO-DA_00008	1 mL	13C3 HFPO-DA	0.5 ug/mL		
							13C3 HFPO-DA (IS)	0.5 ug/mL		
..13C3 HFPO-DA_00008	01/30/19	Wellington Laboratories, Lot M3HFPOADA0817			(Purchased Reagent)		13C3 HFPO-DA	50 ug/mL		
							13C3 HFPO-DA (IS)	50 ug/mL		
.HFPO_Spike_00004	10/30/18	10/30/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO-DA_00004	1 mL	HFPO-DA	0.5 ug/mL		
..HFPO-DA_00004	07/13/20	Wellington Laboratories, Lot HFPODA0717		(Purchased Reagent)		HFPO-DA	50 ug/mL			
HFPO_ICV_00032	10/24/17	10/10/17	80:20 Methanol : H ₂ O, Lot 00016	1 mL	HFPO I.S._00004	20 uL	13C3 HFPO-DA	10 ug/L		
					HFPO Spike_00003	4 uL	HFPO-DA	2 ug/L		
.HFPO_I.S._00004	08/28/18	08/28/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	13C3 HFPO-DA_00004	1 mL	13C3 HFPO-DA	0.5 ug/mL		
..13C3 HFPO-DA_00004	08/28/18	Wellington Laboratories, Lot M3HFPOADA0616			(Purchased Reagent)		13C3 HFPO-DA	50 ug/mL		
.HFPO_Spike_00003	01/11/18	01/10/17	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	HFPO-DA_00003	1 mL	HFPO-DA	0.5 ug/mL		
..HFPO-DA_00003	12/16/18	Wellington Laboratories, Lot HFPOADA0213			(Purchased Reagent)		HFPO-DA	50 ug/mL		
HFPO_ICV_00034	02/22/18	02/08/18	80:20 Methanol : H ₂ O, Lot 00016	1 mL	HFPO I.S._00008	20 uL	13C3 HFPO-DA	10 ug/L		
					HFPO ICV_00001	10 uL	HFPO-DA	1.95009 ug/mL		
.HFPO_I.S._00008	12/12/18	01/30/18	LCMS Grade MeOH, Lot LCMS_MeOH_00110	100 mL	13C3 HFPO-DA_00008	1 mL	13C3 HFPO-DA	0.5 ug/mL		
..13C3 HFPO-DA_00008	01/30/19	Wellington Laboratories, Lot M3HFPOADA0817			(Purchased Reagent)		13C3 HFPO-DA	50 ug/mL		
.HFPO_ICV_00001	11/03/18	11/03/17	Methanol, Lot 12345	100 mL	HFPO SS stock_00002	20 uL	HFPO-DA	0.195009 ug/mL		
..HFPO_SS_stock_00002	11/03/18	11/03/17	Methanol, Lot 12345	500 mL	HFPO_SS_00003	0.5026 g	HFPO-DA	975.044 ug/mL		
...HFPO_SS_00003	05/23/21	Synquest Laboratories, Lot Q141-128			(Purchased Reagent)		HFPO-DA	97 %		

Reagent

13C3 HFPO-DA_00004



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CERTIFICATE OF ANALYSIS DOCUMENTATION

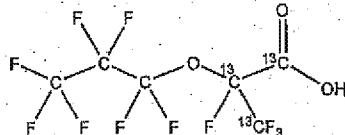
PRODUCT CODE: M3HFPO-DA

LOT NUMBER: M3HFPODA0616

COMPOUND: 2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-¹³C₃-propanoic acid

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA: ¹³C₃¹²C₃HF₁₁O₃

MOLECULAR WEIGHT: 333.03

CONCENTRATION: 50 ± 2.5 µg/ml

SOLVENT(S): Methanol

CHEMICAL PURITY: >98%

ISOTOPIC PURITY: >99% ¹³C

LAST TESTED: (mm/dd/yyyy) 06/25/2016

(¹³C₃)

EXPIRY DATE: (mm/dd/yyyy) 06/25/2019

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 1.5% of two constitutional isomers.
- Product is commercially known as GenX.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 06/29/2016

(mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HAZARDS:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Where possible, all of our products are synthesized using single-product unambiguous routes. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2, \dots, x_n on which it depends is:

$$u_c(y(x_1, x_2, \dots, x_n)) = \sqrt{\sum_{i=1}^n u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using NIST and/or NRC traceable external weights. All volumetric glassware used is of Class A tolerance and has been tested according to the appropriate ASTM procedures, which are ultimately traceable to NIST. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

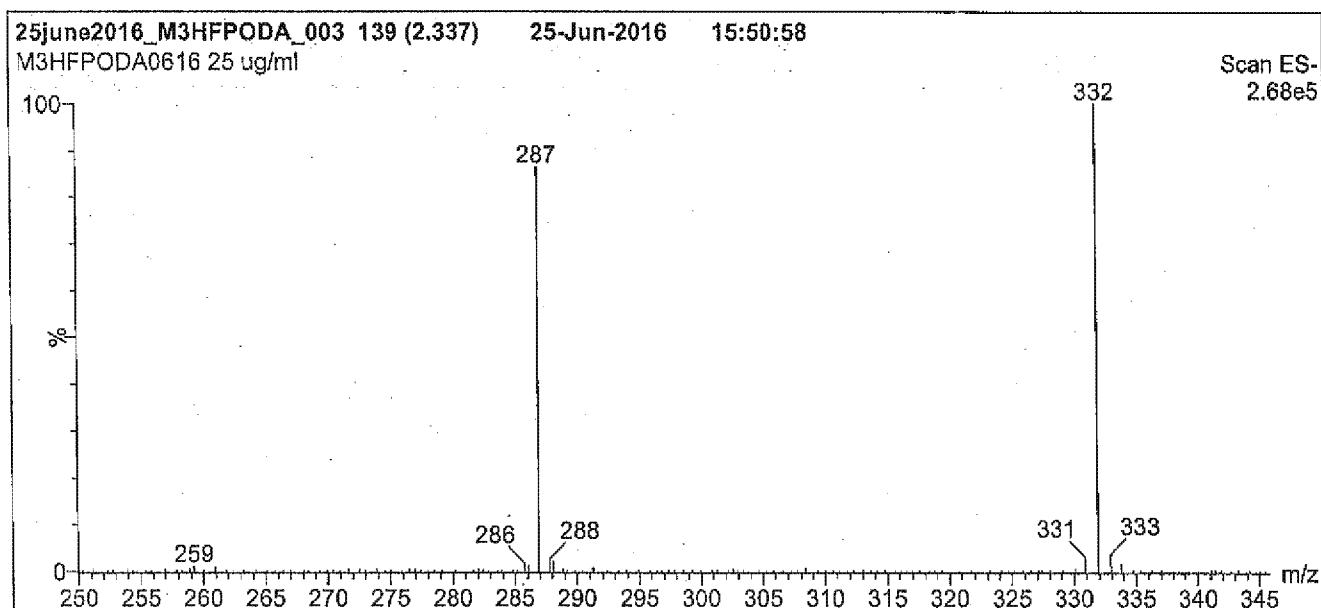
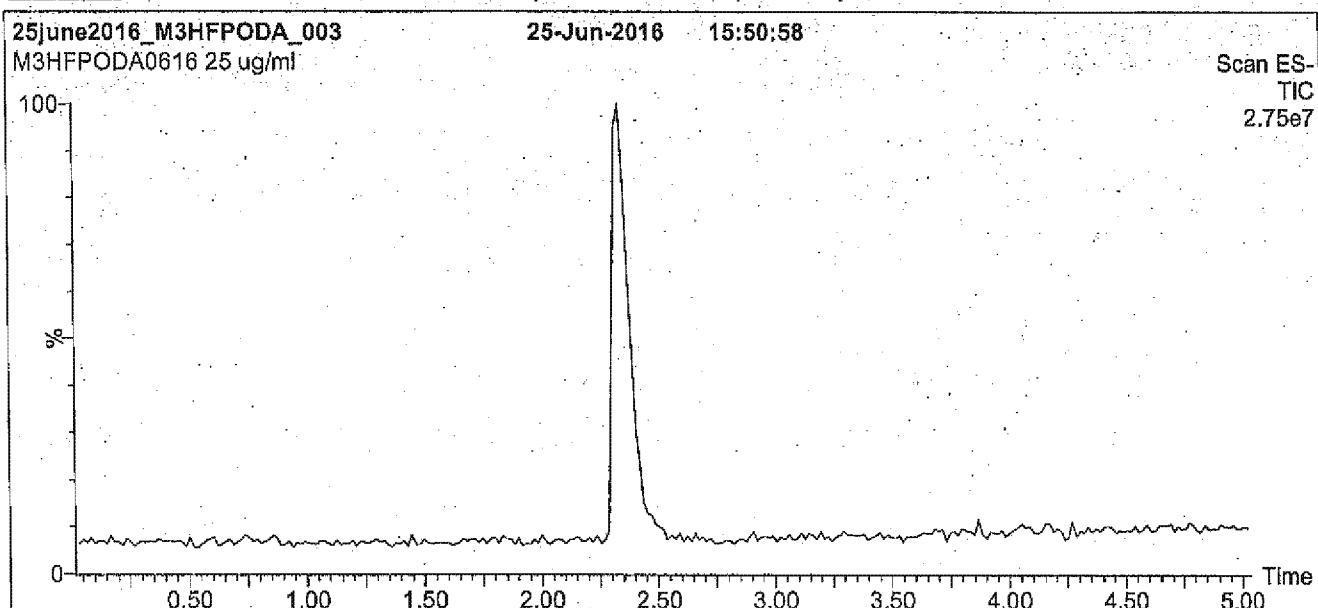
QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).



For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Figure 1: M3HFPO-DA; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

LC: Waters Acquity Ultra Performance LC
MS: Micromass Quattro micro API MS

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈,
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

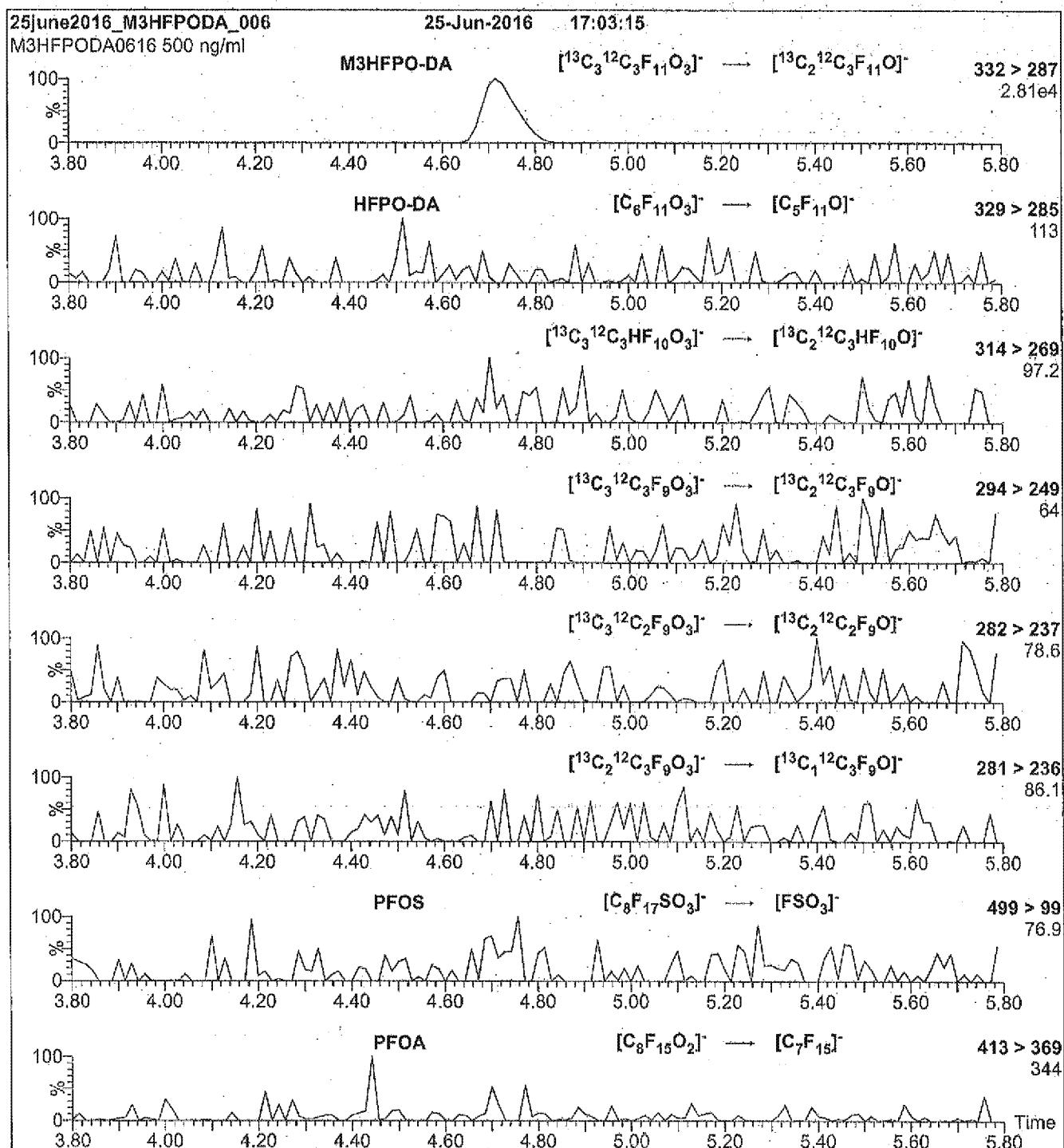
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 9.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: M3HFPO-DA; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: Direct loop injection
10 μ l (500 ng/ml M3HFPO-DA)

MS Parameters

Collision Gas (mbar) = 3.46e-3
Collision Energy (eV) = 5

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H₂O
(both with 10 mM NH₄OAc buffer)

Flow: 300 μ l/min

Reagent

13C3 HFPO-DA_00008



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

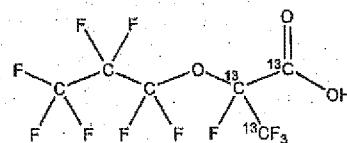
PRODUCT CODE:

M3HFPO-DA

COMPOUND:

2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3-heptafluoropropoxy)-¹³C₃-propanoic acid

STRUCTURE:



LOT NUMBER: M3HFPODA0817

CAS #:

Not available

MOLECULAR FORMULA:

¹³C₃¹²C₃HF₁₁O₃

CONCENTRATION:

50 ± 2.5 µg/ml

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

08/17/2017

EXPIRY DATE: (mm/dd/yyyy)

08/17/2020

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

MOLECULAR WEIGHT: 333.03

SOLVENT(S): Methanol

ISOTOPIC PURITY: >99% ¹³C

(¹³C₃)

DOCUMENTATION/DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 1.5% of two constitutional isomers.
- Product is commercially known as GenX.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

Date: 08/25/2017

(mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • Info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HAZARDS:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Where possible, all of our products are synthesized using single-product unambiguous routes. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UW/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS and/or SFC/UW/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters

x_1, x_2, \dots, x_n on which it depends is:

$$u_c(y(x_1, x_2, \dots, x_n)) = \sqrt{\sum_{i=1}^n u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using calibrated NIST and/or NRC traceable external weights. All volumetric glassware used is calibrated, of Class A tolerance, and has been tested according to the appropriate ASTM procedures, which are ultimately traceable to NIST. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

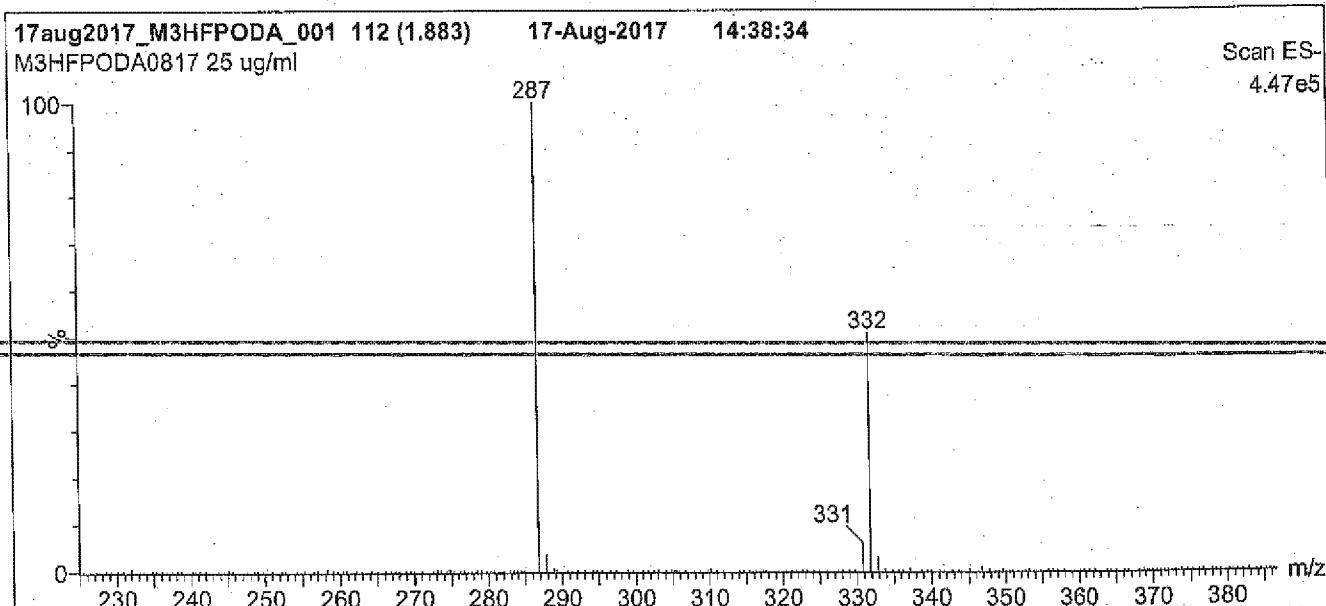
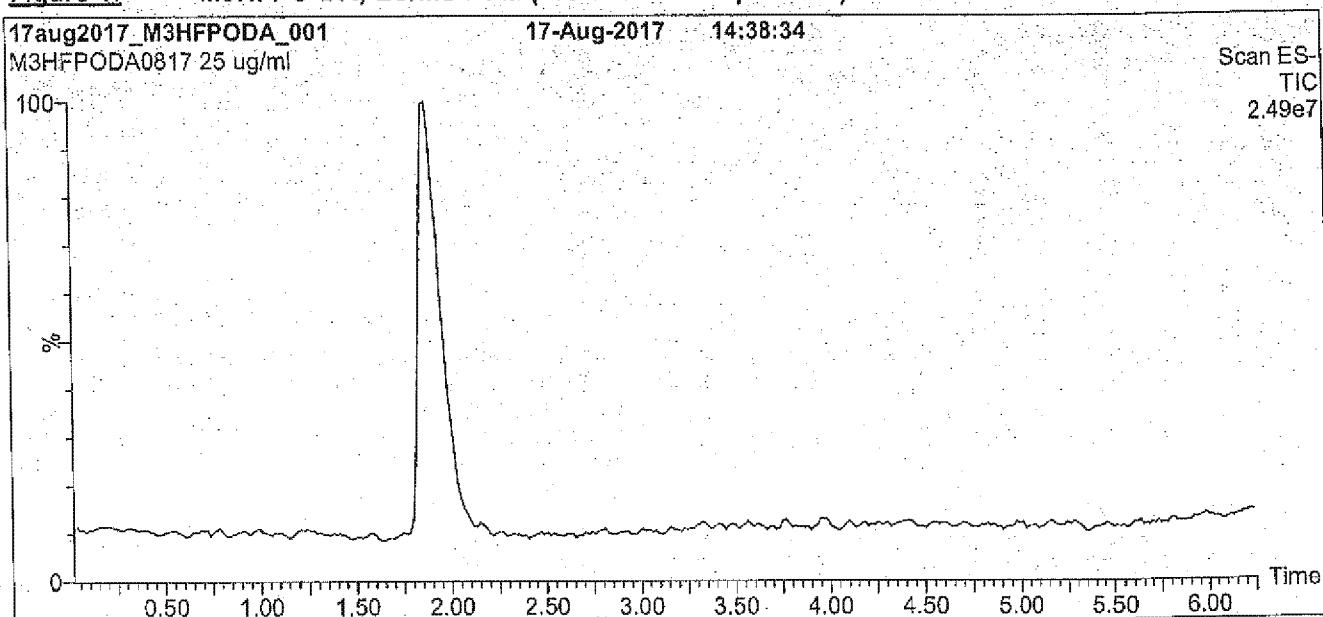
QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).



For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Figure 1: M3HFPO-DA; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

LC: Waters Acquity Ultra Performance LC
MS: Micromass Quattro *micro* API MS

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
 1.7 μm, 2.1 x 100 mm

Mobile phase: Gradient

Start: 55% MeOH / 45% H₂O with 10 mM NH₄OAc buffer
 Ramp to 90% organic over 7.5 min and hold for 1.5 min
 before returning to initial conditions in 0.5 min.

Time: 10 min

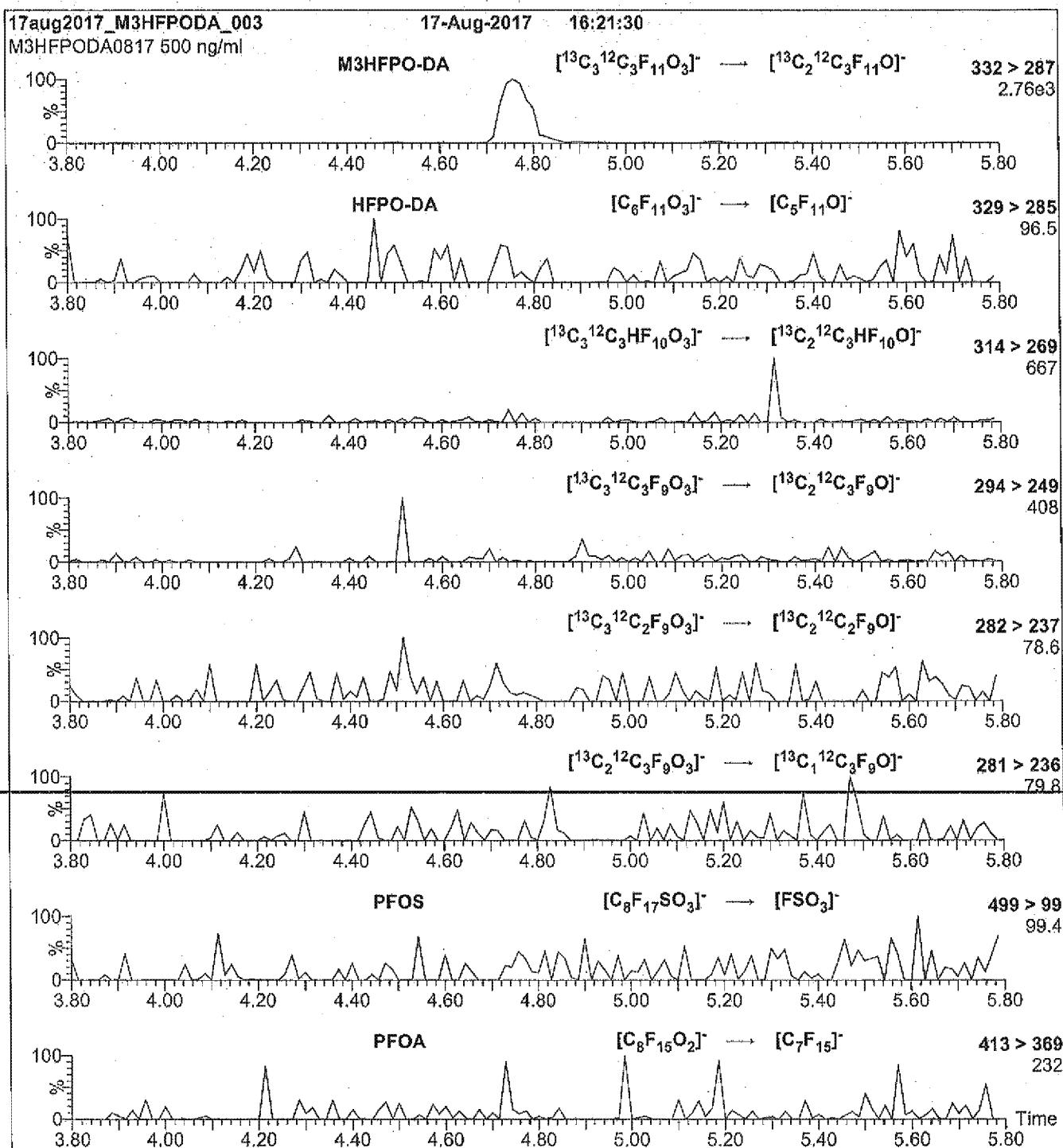
Flow: 300 μl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
 Capillary Voltage (kV) = 3.00
 Cone Voltage (V) = 10.00
 Cone Gas Flow (l/hr) = 100
 Desolvation Gas Flow (l/hr) = 750

Figure 2: M3HFPO-DA; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: Direct loop injection
10 μ l (500 ng/ml M3HFPO-DA)

Mobile phase: Isocratic 80% MeOH / 20% H₂O wth 10 mM NH₄OAc buffer

Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.24e-3
Collision Energy (eV) = 5

Reagent

13C3 HFPO-DA_00010



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

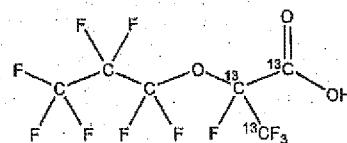
PRODUCT CODE:

M3HFPO-DA

COMPOUND:

2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3-heptafluoropropoxy)-¹³C₃-propanoic acid

STRUCTURE:



LOT NUMBER: M3HFPODA0817

CAS #:

Not available

MOLECULAR FORMULA:

¹³C₃¹²C₃HF₁₁O₃

CONCENTRATION:

50 ± 2.5 µg/ml

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

08/17/2017

EXPIRY DATE: (mm/dd/yyyy)

08/17/2020

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

MOLECULAR WEIGHT: 333.03

SOLVENT(S): Methanol

ISOTOPIC PURITY: >99% ¹³C

(¹³C₃)

DOCUMENTATION/DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 1.5% of two constitutional isomers.
- Product is commercially known as GenX.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

Date: 08/25/2017

(mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • Info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HAZARDS:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

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Where possible, all of our products are synthesized using single-product unambiguous routes. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UW/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS and/or SFC/UW/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters

x_1, x_2, \dots, x_n on which it depends is:

$$u_c(y(x_1, x_2, \dots, x_n)) = \sqrt{\sum_{i=1}^n u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of $\pm 5\%$ (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

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EXPIRY DATE / PERIOD OF VALIDITY:

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LIMITED WARRANTY:

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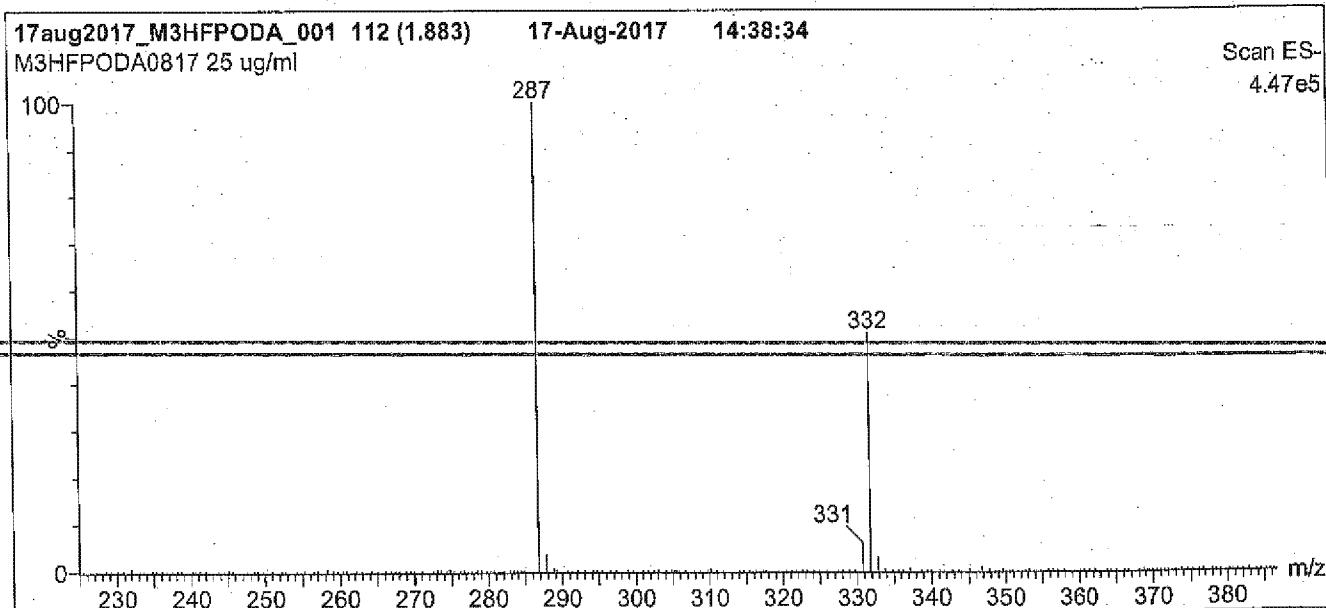
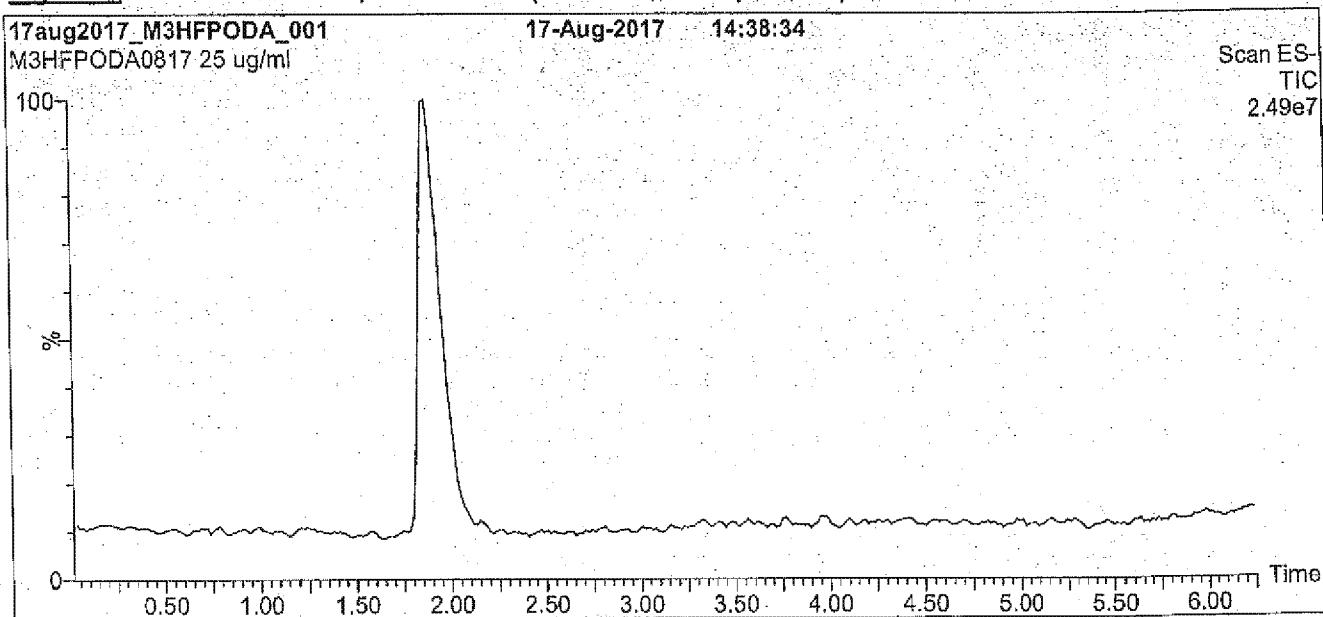
QUALITY MANAGEMENT:

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Figure 1: M3HFPO-DA; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

LC: Waters Acquity Ultra Performance LC
MS: Micromass Quattro *micro* API MS

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
 1.7 μm, 2.1 x 100 mm

Mobile phase: Gradient

Start: 55% MeOH / 45% H₂O with 10 mM NH₄OAc buffer
 Ramp to 90% organic over 7.5 min and hold for 1.5 min
 before returning to initial conditions in 0.5 min.

Time: 10 min

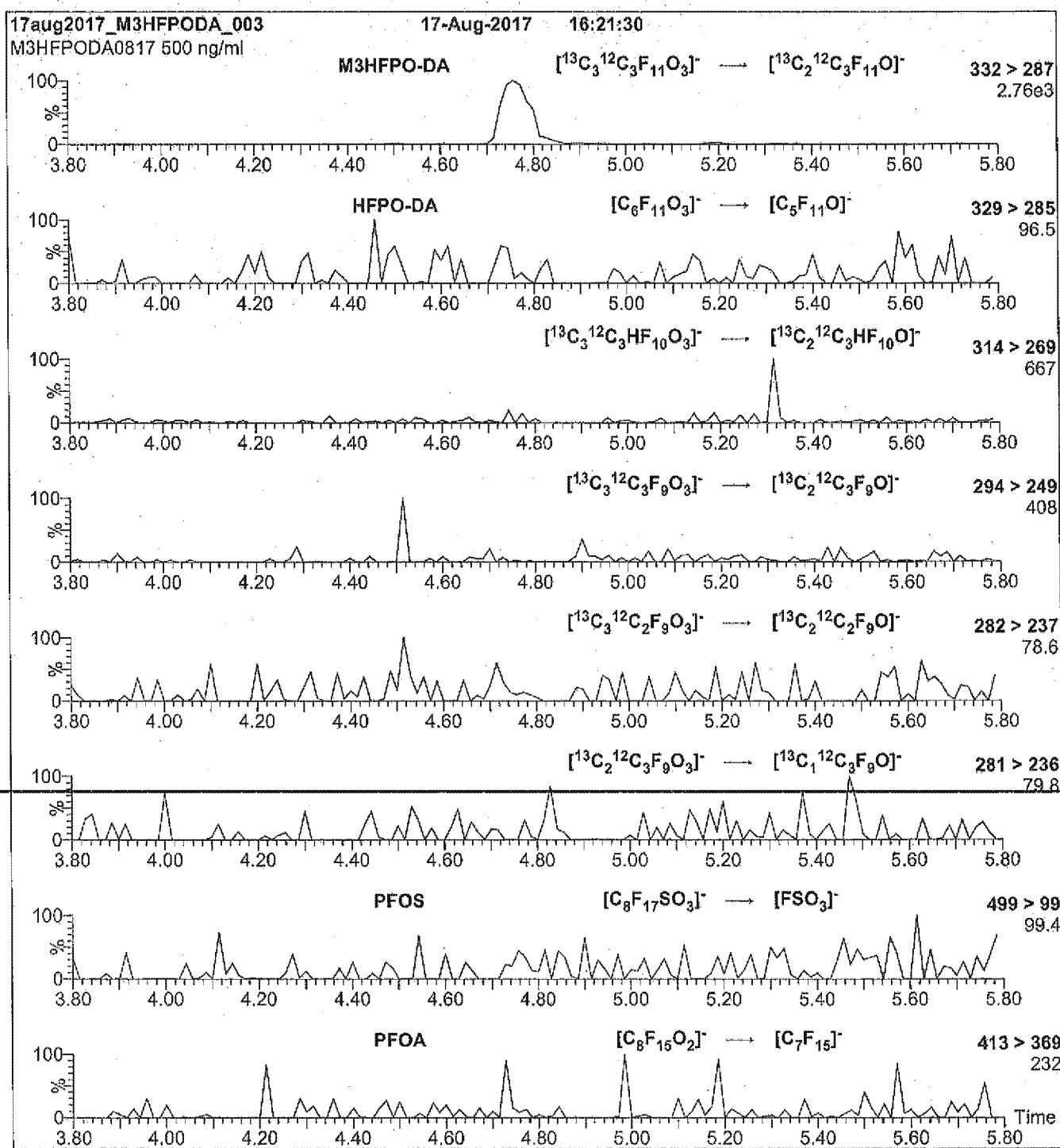
Flow: 300 μl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
 Capillary Voltage (kV) = 3.00
 Cone Voltage (V) = 10.00
 Cone Gas Flow (l/hr) = 100
 Desolvation Gas Flow (l/hr) = 750

Figure 2: M3HFPO-DA; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: Direct loop injection
10 μl (500 ng/ml M3HFPO-DA)

MS Parameters

Collision Gas (mbar) = 3.24e-3
Collision Energy (eV) = 5

Mobile phase: Isocratic 80% MeOH / 20% H_2O wth 10 mM NH_4OAc buffer

Flow: 300 $\mu\text{l}/\text{min}$

Reagent

HFPO I.S._00004

**Reagent ID: HFPO I.S._00004**

Description:	Internal Standard for HFPO 0.5ug/ml	Expiration Date:	08/28/2018
No. of Bottles:	1	Laboratory:	TestAmerica Denver
Storage Location:	North Analytical	Prepared By:	Meyer, Andrew GC
Reagent Volume:	100.000 mL	Solvent:	LCMS Grade MeOH
Creation Date:	08/28/2017	Solvent Lot#:	LCMS_MeOH_00110
Open Date:			
Container(s):	4700620		
Comment:			

Reagent Analyte Information

Analyte	Source ID	Source Exp. Date	Source Conc.	Source Units	Final Conc.	Final Conc. Units
13C3 HFPO-DA	13C3 HFPO-DA_00004	08/28/2018	50.00000	ug/mL	0.50000	ug/mL
13C3 HFPO-DA (IS)	13C3 HFPO-DA_00004	08/28/2018	50.00000	ug/mL	0.50000	ug/mL

Source Recipients

Reagent	Description	Type	Expiration	Vendor	Vendor Lot #	Vendor Cat Lot #	Volume Used	Volume Units
13C3 HFPO-DA_00004	13C3 HFPO-DA I.S. for HFPO	ASTD	08/28/18	Wellington Laboratories	M3HFPOADA0616M3HFPO-DA	1.00000	mL	

Ok PW
8/29/17

ataset: Untitled

st Altered: Tuesday, August 29, 2017 10:47:21 Mountain Daylight Time

nted: Tuesday, August 29, 2017 10:47:53 Mountain Daylight Time

ethod: C:\MassLynx\8321.PRO\MethDB\hfpo.mdb 23 Aug 2017 10:19:52

libration: C:\MassLynx\8321.PRO\CurveDB\hfpo17d24.cdb 24 Apr 2017 13:20:17

sample Name: hfpo717H23083

FPO IS 00004 MRM of 2 channels,ES-
328.8 > 284.8

2.895e+005

HFPO 0.99

27241.82

2.72e4

0.65

0 0.50 1.00 1.50 min

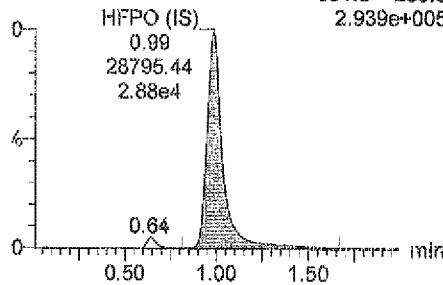
#	Name	Type	Std. Conc.	RT	Area	S/Area	Response	Primar	ppb	%Dev
1	hfpo717H23083		10.000	0.99	27241.822	28795.438	0.946	bd	10.0	-0.4

Dataset: Untitled

Last Altered: Tuesday, August 29, 2017 10:47:21 Mountain Daylight Time
Entered: Tuesday, August 29, 2017 10:47:53 Mountain Daylight Time

Sample Name: hfp0717H23083

PO IS 00004 MRM of 2 channels,ES-
331.8 > 286.8



#	Name	Type	Std. Conc.	RT	Area	(S) Area	Response	Primar...	ppb	%Dev
1	hfp0717H23083		1.000	0.99	28795.438		28795.438	bb	1.2	23.6

Reagent

HFPO-DA 00003



WELLINGTON LABORATORIES

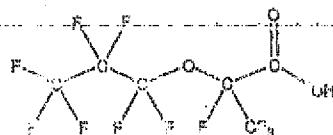
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:
COMPOUND:

HFPO-DA

2,2,3,3-tetrafluoro-2-(1,1,2,2,3,3-heptafluoropropoxy)-propanoic acid

STRUCTURE: **CAS #:** 13262-13-6



MOLECULAR FORMULA: C₆H₁₀F₁₀O₃
CONCENTRATION: 50 ± 2.5 µg/ml
CHEMICAL PURITY: >98%
LAST TESTED: (mmddyy) 02/05/2014
EXPIRY DATE: (mmddyy) Stability studies ongoing
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

MOLECULAR WEIGHT: 330.05
SOLVENT(S): Methanol

DOCUMENTATION DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

21-0-D25 PB
21-LPL
MDL

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 02/13/2014
(mmddyy)

Wellington Laboratories Inc., 346 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. They are designed to be used as reference standards for the identification and/or quantification of specific chemical compound(s).

HAZARDS:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Material Safety Data Sheets (MSDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Where possible, all of our products are synthesized using single-product, unambiguous routes. They are then characterized, and their structures and purity confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, x-ray crystallography and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given solvent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS and/or LC/MS/MS. The relative response factors of the analyte of interest in each solution are required to be $\pm 5\%$ RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $U_r(V)$, of a value V and the uncertainty of the independent parameters

x_1, x_2, \dots, x_n on which it depends is:

$$U_r(V(x_1, x_2, \dots, x_n)) = \sqrt{\sum_{i=1}^n U(x_i)^2}$$

where U is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of $\pm 5\%$ (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly tested by an external, ISO/IEC 17020:2006 accredited calibration company, in addition, their calibration is verified prior to each weighing using NIST and/or NIST traceable external weights. All volumetric glassware used is of Class A tolerance and has been tested according to the appropriate ASTM procedures, which are ultimately traceable to NIST. For certain products, traceability to intermediate interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

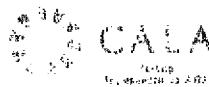
Ongoing stability studies of this product have demonstrated stability in its composition and concentration for the period of time specified by the expiry date in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

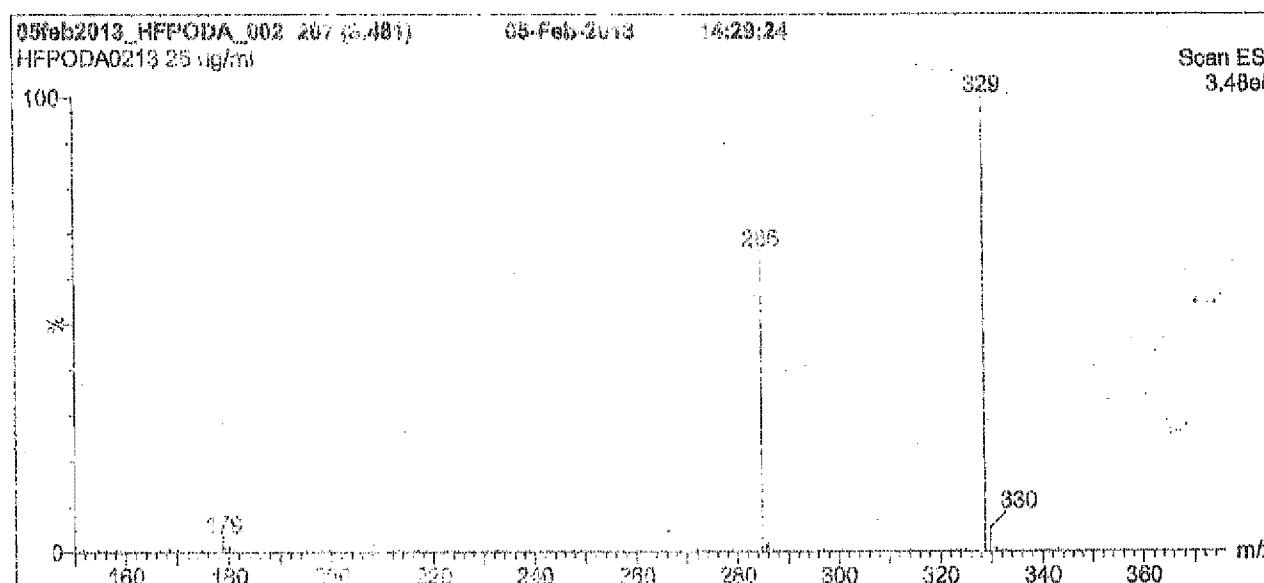
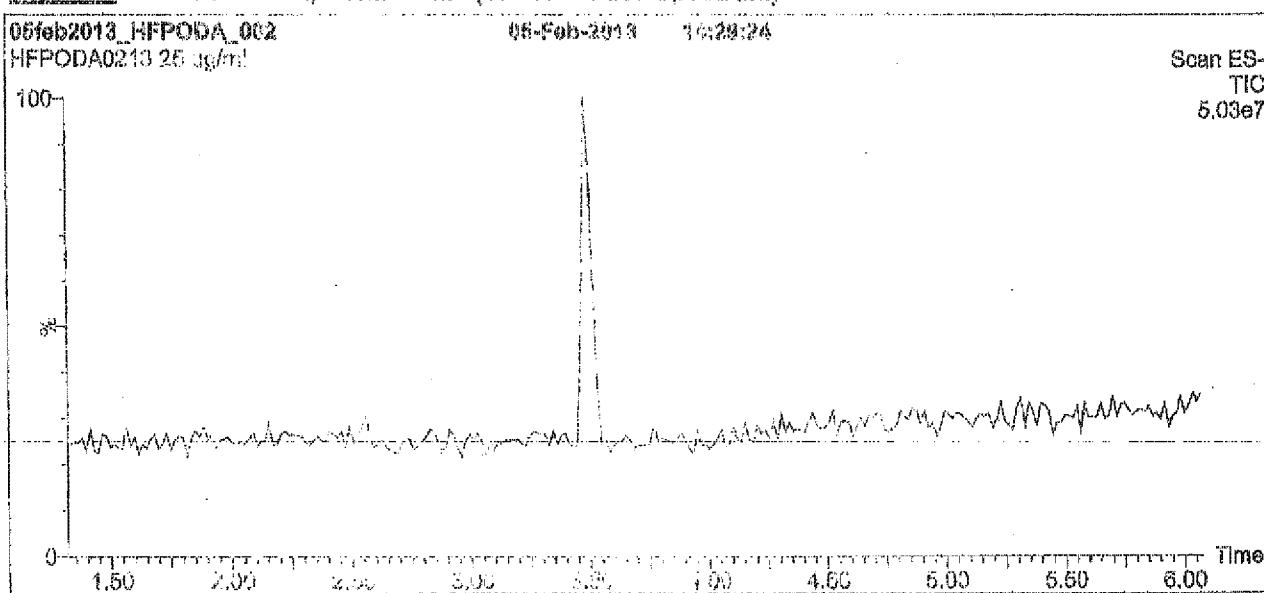
QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to ISO 9001:2008 by SAI Global, ISO/IEC 17025:2005 by the Canadian Association for Laboratory Accreditation Inc. (CALA, A1226), and ISO GUIDE 34:2009 by ACCLASS (certificate number AF-059).



*For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at iso@well-labs.com**

Figure 1: HFFPO-DA; LC/MS Data (TIC and Mass spectrum)



Conditions for Figure 1:

LC: Waters Acuity UHPLC Performance LC
MS: Micromass Quattro micro API MS

Chromatographic Conditions:

Column: Kinetex PEI
2.6 μm , 4.8 x 100 mm

Mobile phase: Gradient
Start: 40% (0.020 Molar LiClO₄) / 60% H₂O
Gradient: 10 mM Li₂CO₃ buffer
Ramp to 60% organic over 6 min and hold for 1 min
before returning to initial conditions in 0.5 min.
Time: 11 min

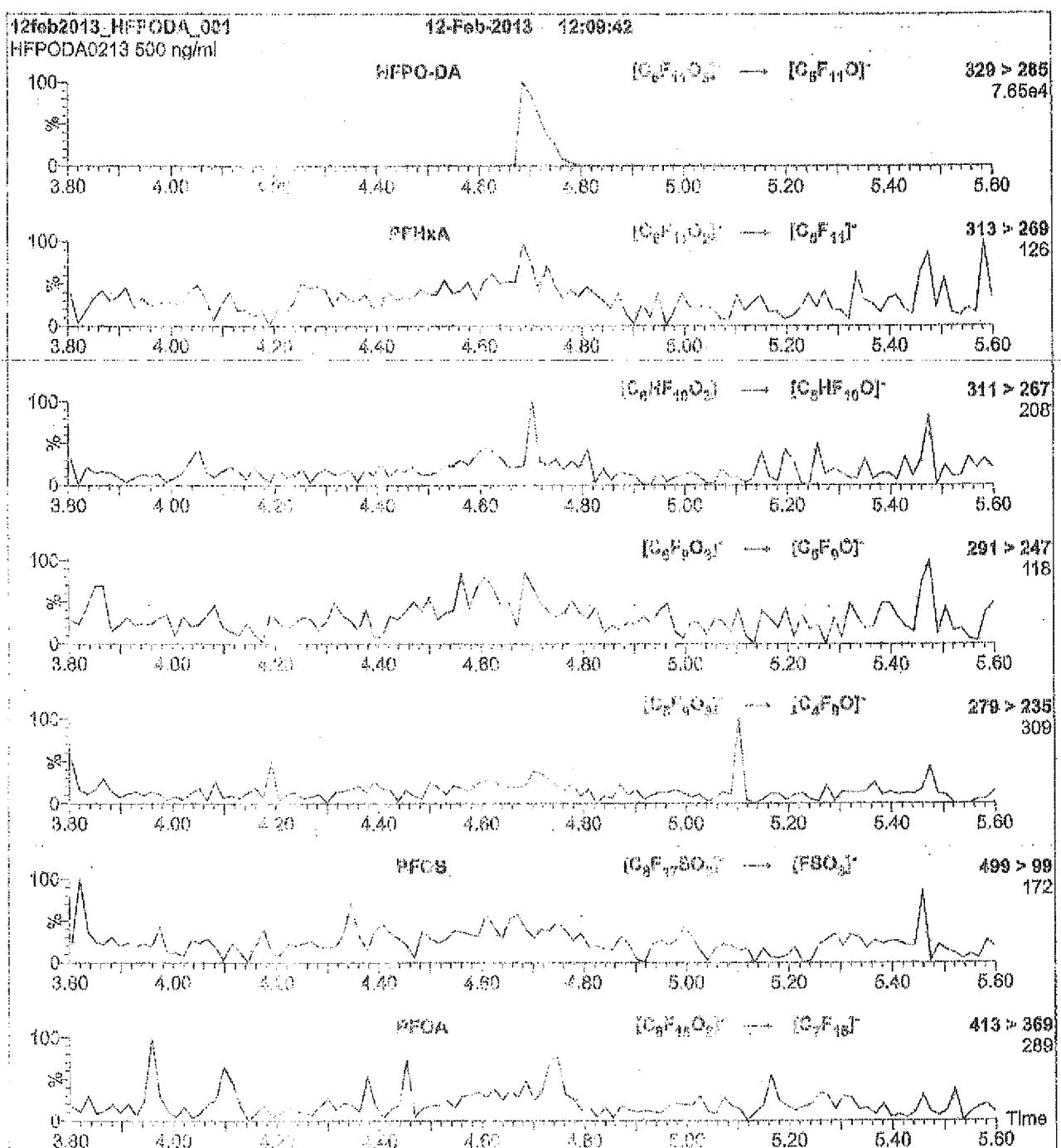
Flow: 0.01 $\mu\text{l}/\text{min}$

MS Parameters:

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 9.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: HFFO-DA; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: Direct loop injection
10 μ l (500 ng/ml HFFO-DA)

ESI Parameters:

Collision Gas (mbar) = 3.87e-3

Mobile phase: Isocratic 80% (60:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Collision Energy (eV) = 5

Flow: 300 μ l/min

Reagent

HFPO-DA 00004



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

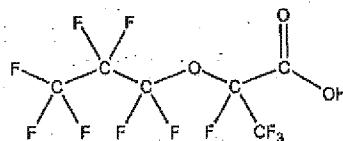
PRODUCT CODE: HFPO-DA

LOT NUMBER: HFPODA0717

COMPOUND: 2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid

STRUCTURE:

CAS #: 13252-13-6



MOLECULAR FORMULA: C₆HF₁₁O₃

MOLECULAR WEIGHT: 330.05

CONCENTRATION: 50 ± 2.5 µg/ml

SOLVENT(S): Methanol

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 07/13/2017

EXPIRY DATE: (mm/dd/yyyy) 07/13/2020

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Product is commercially known as GenX.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

Date: 07/14/2017

(mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • Info@well-labs.com

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x_1, x_2, \dots, x_n on which it depends is:

$$u_c(y(x_1, x_2, \dots, x_n)) = \sqrt{\sum_{i=1}^n u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of $\pm 5\%$ (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

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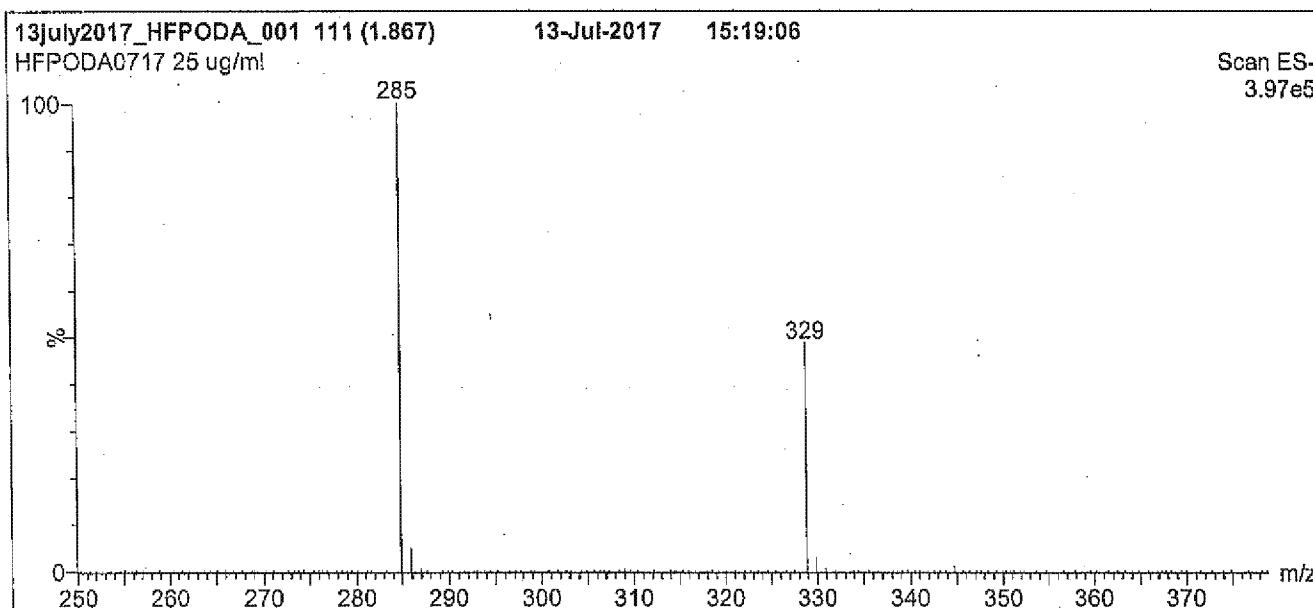
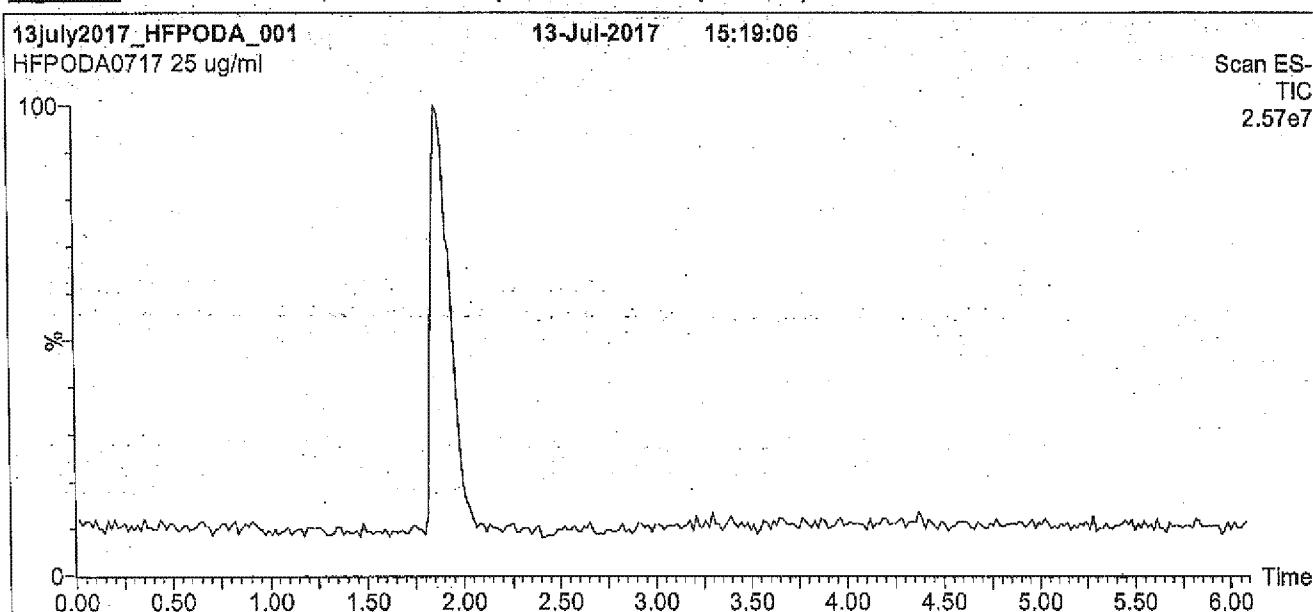
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Figure 1: HFPO-DA; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

LC: Waters Acquity Ultra Performance LC
MS: Micromass Quattro *micro* API MS

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 55% MeOH / 45% H₂O with 10 mM NH₄OAc buffer
Ramp to 90% organic over 7.5 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.

Time: 10 min

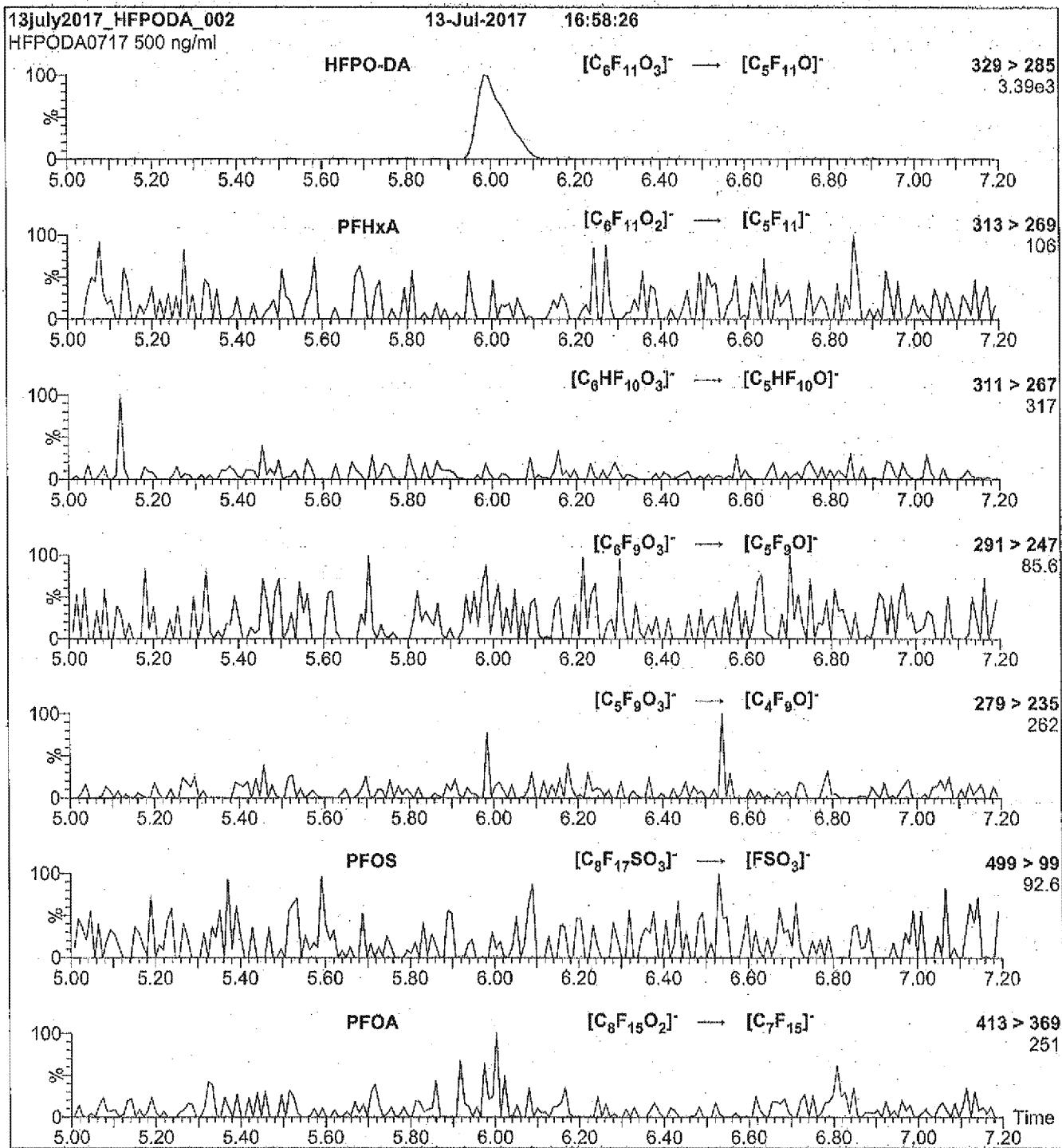
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 10.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 700

Figure 2: HFPO-DA; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: Direct loop injection
10 μ l (500 ng/ml HFPO-DA)

MS Parameters

Collision Gas (mbar) = 3.20e-3
Collision Energy (eV) = 5

Mobile phase: Isocratic 80% MeOH / 20% H₂O with 10 mM NH₄OAc buffer

Flow: 300 μ l/min

Reagent

HFPO-DA_00005



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

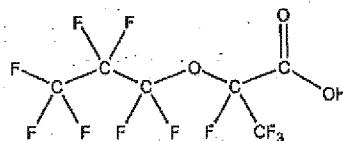
PRODUCT CODE: HFPO-DA

LOT NUMBER: HFPODA0717

COMPOUND: 2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid

STRUCTURE:

CAS #: 13252-13-6



MOLECULAR FORMULA: C₆HF₁₁O₃

MOLECULAR WEIGHT: 330.05

CONCENTRATION: 50 ± 2.5 µg/ml

SOLVENT(S): Methanol

CHEMICAL PURITY: >98%

LAST TESTED: (mm/dd/yyyy) 07/13/2017

EXPIRY DATE: (mm/dd/yyyy) 07/13/2020

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Product is commercially known as GenX.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim, General Manager

Date: 07/14/2017

(mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • Info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HAZARDS:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Where possible, all of our products are synthesized using single-product unambiguous routes. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters

x_1, x_2, \dots, x_n on which it depends is:

$$u_c(y(x_1, x_2, \dots, x_n)) = \sqrt{\sum_{i=1}^n u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using calibrated NIST and/or NRC traceable external weights. All volumetric glassware used is calibrated, of Class A tolerance, and has been tested according to the appropriate ASTM procedures, which are ultimately traceable to NIST. For certain products, traceability to International Interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

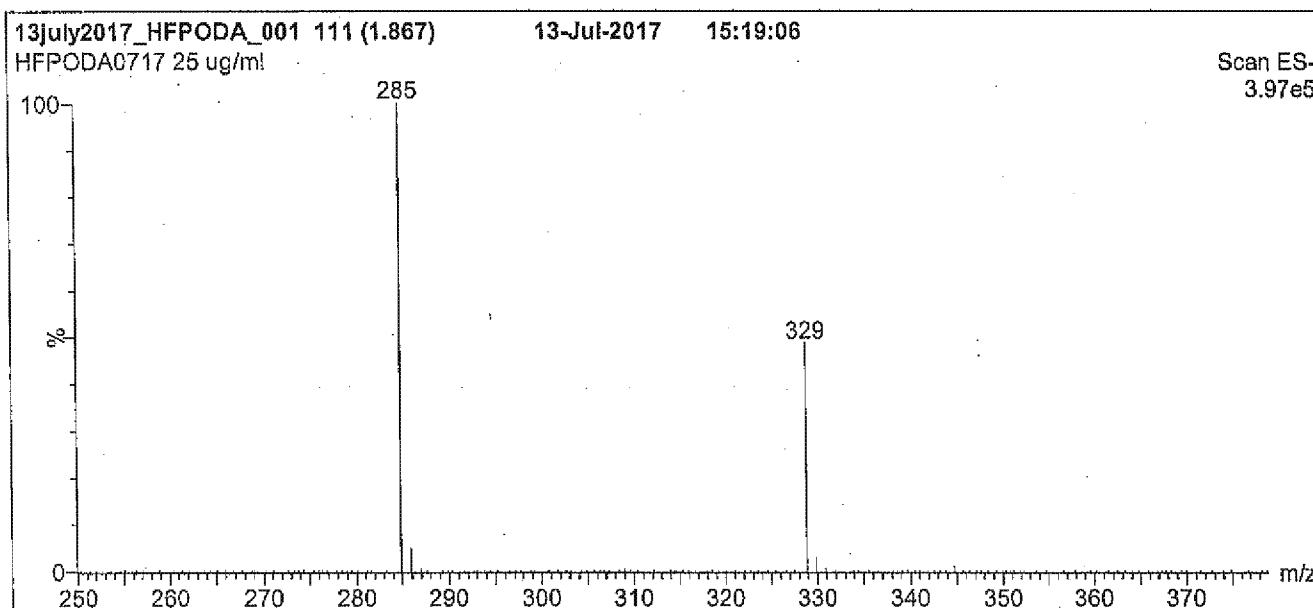
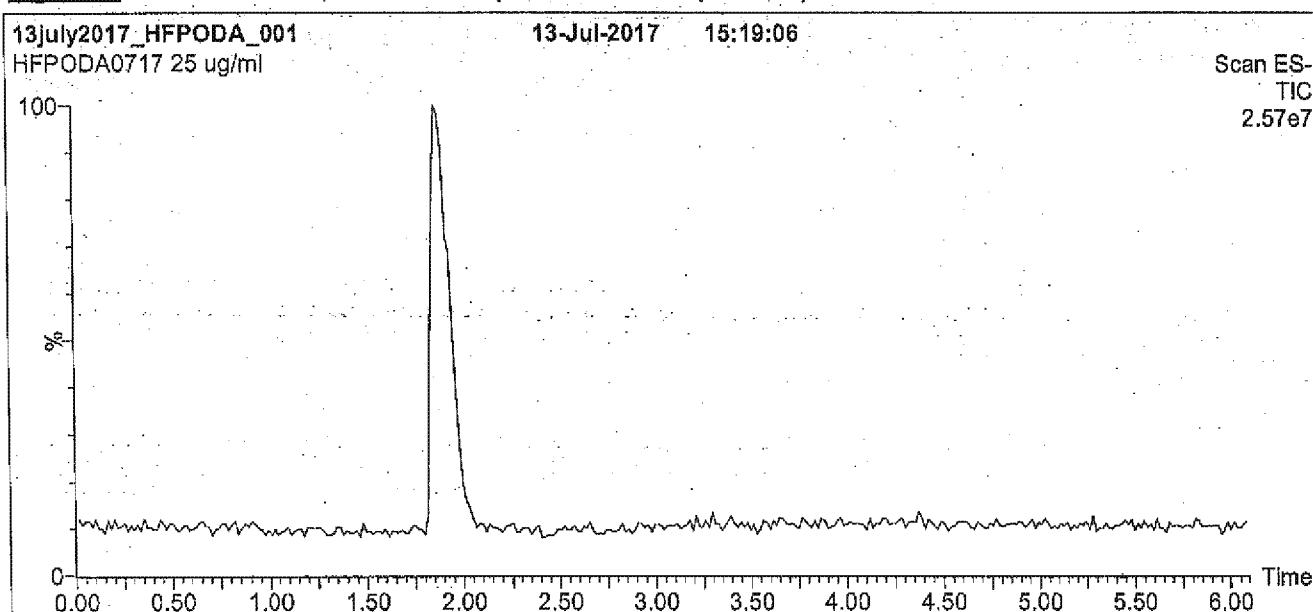
QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).



For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Figure 1: HFPO-DA; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

LC: Waters Acquity Ultra Performance LC
MS: Micromass Quattro *micro* API MS

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 55% MeOH / 45% H₂O with 10 mM NH₄OAc buffer
Ramp to 90% organic over 7.5 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.

Time: 10 min

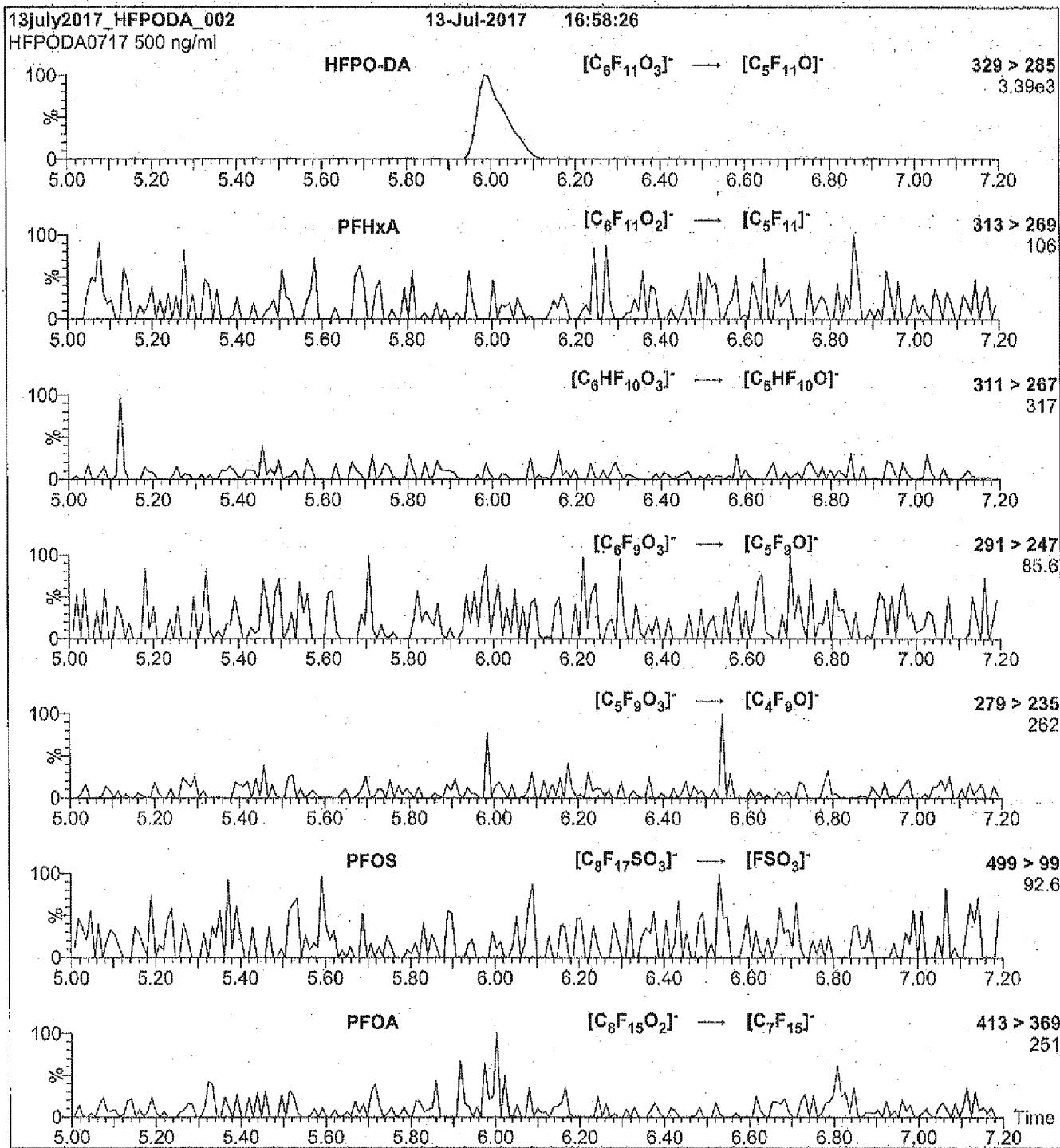
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 10.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 700

Figure 2: HFPO-DA; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: Direct loop injection
10 μ l (500 ng/ml HFPO-DA)

MS Parameters

Collision Gas (mbar) = 3.20e-3
Collision Energy (eV) = 5

Mobile phase: Isocratic 80% MeOH / 20% H₂O with 10 mM NH₄OAc buffer

Flow: 300 μ l/min

8321A_HFPO_Du

HFPO-DA

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Denver Job No.: 280-107405-1

SDG No.: _____

Matrix: Water Level: Low

GC Column (1): Synergi Hyd ID: _____

Client Sample ID	Lab Sample ID	HFPEDA #
FAY-D-5562MATTH-W1 -1-031318D	280-107405-1	94
FAY-D-5562MATTH-W1 -1-031318	280-107405-2	92
FAY-D-5562MATTH-W1 -2-031318	280-107405-3	94
FAY-D-FB-031318	280-107405-4	94
	MB 280-408382/1-A	90
	LCS 280-408382/2-A	92
	LCSD 280-408382/3-A	93
	LLCS 280-408382/4-A	93
FAY-D-5562MATTH-W1 -1-031318 MS	280-107405-2 MS	93
FAY-D-5562MATTH-W1 -1-031318 DU	280-107405-2 DU	95
	DLCK 280-404345/13	104

HFPEDA = 13C3 HFPO-DA

QC LIMITS
50-200

Column to be used to flag recovery values

FORM II 8321A

FORM III
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Denver Job No.: 280-107405-1

SDG No.: _____

Matrix: Water Level: Low Lab File ID: hfpo718C23012.d

Lab ID: LCS 280-408382/2-A Client ID: _____

COMPOUND	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC	QC LIMITS REC	#
HFPO-DA	0.200	0.187	94	70-130	

Column to be used to flag recovery and RPD values

FORM III 8321A

FORM III
LCMS LAB CONTROL SAMPLE DUPLICATE RECOVERY

Lab Name: TestAmerica Denver

Job No.: 280-107405-1

SDG No.: _____

Matrix: Water Level: Low Lab File ID: hfpo718C23013.d

Lab ID: LCSD 280-408382/3-A Client ID: _____

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD REC	%	QC LIMITS		#
					RPD	RPD	
HFPO-DA	0.200	0.179	90	4	20	70-130	

Column to be used to flag recovery and RPD values

FORM III 8321A

FORM III
LCMS LOW LEVEL CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Denver Job No.: 280-107405-1

SDG No.: _____

Matrix: Water Level: Low Lab File ID: hfpo718C23014.d

Lab ID: LLCS 280-408382/4-A Client ID: _____

COMPOUND	SPIKE ADDED (ug/L)	LLCS CONCENTRATION (ug/L)	LLCS REC	QC LIMITS REC	#
HFPO-DA	0.0200	0.0201	101	70-130	

Column to be used to flag recovery and RPD values

FORM III 8321A

FORM III
LCMS MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Denver Job No.: 280-107405-1

SDG No.: _____

Matrix: Water Level: Low Lab File ID: hfpo718C23022.d

Lab ID: 280-107405-2 MS Client ID: FAY-D-5562MATTH-W1-1-031318 MS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC	QC LIMITS REC	#
HFPO-DA	0.202	0.028	0.215	93	70-130	

Column to be used to flag recovery and RPD values

FORM III 8321A

FORM III
LCMS DETECTION LIMIT CHECK STANDARD RECOVERY

Lab Name: TestAmerica Denver Job No.: 280-107405-1

SDG No.: _____

Matrix: Water Level: Low Lab File ID: hfpo718B08044.d

Lab ID: DLCK 280-404345/13 Client ID: _____

COMPOUND	SPIKE ADDED (ug/L)	DLCK CONCENTRATION (ug/L)	DLCK % REC	QC LIMITS REC	#
HFPO-DA	0.250	<0.50	90	70-130	

Column to be used to flag recovery and RPD values

FORM III 8321A

FORM IV
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-107405-1
SDG No.:
Lab File ID: hfpo718C23011.d Lab Sample ID: MB 280-408382/1-A
Matrix: Water Date Extracted: 03/19/2018 20:12
Instrument ID: LC_LCMS7 Date Analyzed: 03/26/2018 10:18
Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 280-408382/2-A	hfpo718C230 12.d	03/26/2018 10:21
	LCSD 280-408382/3-A	hfpo718C230 13.d	03/26/2018 10:24
	LLCS 280-408382/4-A	hfpo718C230 14.d	03/26/2018 10:27
FAY-D-5562MATTH-W1-1-031318D	280-107405-1	hfpo718C230 18.d	03/26/2018 10:40
FAY-D-5562MATTH-W1-1-031318	280-107405-2	hfpo718C230 20.d	03/26/2018 10:47
FAY-D-5562MATTH-W1-1-031318 DU	280-107405-2 DU	hfpo718C230 21.d	03/26/2018 10:50
FAY-D-5562MATTH-W1-1-031318 MS	280-107405-2 MS	hfpo718C230 22.d	03/26/2018 10:53
FAY-D-5562MATTH-W1-2-031318	280-107405-3	hfpo718C230 23.d	03/26/2018 10:57
FAY-D-FB-031318	280-107405-4	hfpo718C230 24.d	03/26/2018 11:00

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 280-107405-1

SDG No.: _____

Client Sample ID: FAY-D-5562MATTH-W1-1-0313 Lab Sample ID: 280-107405-1
18D

Matrix: Water Lab File ID: hfpo718C23018.d

Analysis Method: 8321A Date Collected: 03/13/2018 09:37

Extraction Method: 3535 Date Extracted: 03/19/2018 20:12

Sample wt/vol: 255.6 (mL) Date Analyzed: 03/26/2018 10:40

Con. Extract Vol.: 5 (mL) Dilution Factor: 1

Injection Volume: 20 (uL) GC Column: Synergi Hydro ID: _____

% Moisture: GPC Cleanup: (Y/N) N

Analysis Batch No.: 409067 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
13252-13-6	HFPO-DA	0.028		0.010	

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL02255	13C3 HFPO-DA	94		50-200

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180326-68335.b\hfpo718C23018.d
 Lims ID: 280-107405-B-1-A
 Client ID: FAY-D-5562MATTH-W1-1-031318D
 Sample Type: Client
 Inject. Date: 26-Mar-2018 10:40:56 ALS Bottle#: 18 Worklist Smp#: 18
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 280-107405-B-1-A
 Misc. Info.: HFPO18C26
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180326-68335.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 26-Mar-2018 14:06:29 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK007

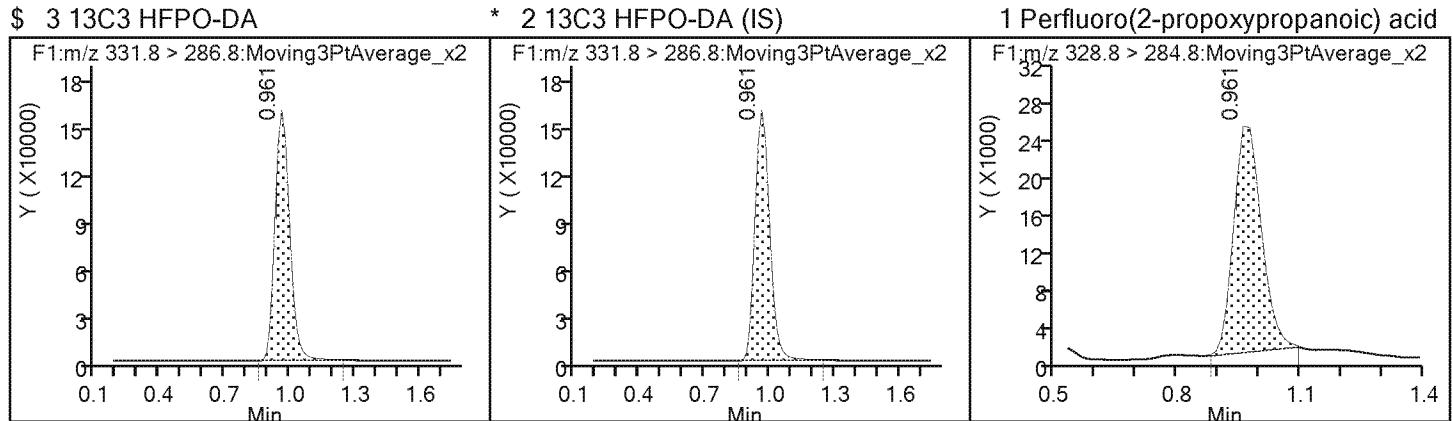
First Level Reviewer: meyera Date: 26-Mar-2018 13:55:45

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
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\$ 3 13C3 HFPO-DA
 331.8 > 286.8 0.961 1.045 -0.084 1.000 699705 9.37 3693
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 0.961 1.045 -0.084 1.000 699705 10.0 3693
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 0.961 1.056 -0.095 1.000 109950 1.44 44.7

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180326-68335.b\\hfpo718C23018.d
Injection Date: 26-Mar-2018 10:40:56 Instrument ID: LC_LCMS7
Lims ID: 280-107405-B-1-A Lab Sample ID: 280-107405-1
Client ID: FAY-D-5562MATTH-W1-1-031318D
Operator ID: JBH ALS Bottle#: 18 Worklist Smp#: 18
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: HFPO Limit Group: LC - 8321A_HFPO_Du



TestAmerica Denver
Recovery Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180326-68335.b\hfpo718C23018.d
 Lims ID: 280-107405-B-1-A
 Client ID: FAY-D-5562MATTH-W1-1-031318D
 Sample Type: Client
 Inject. Date: 26-Mar-2018 10:40:56 ALS Bottle#: 18 Worklist Smp#: 18
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 280-107405-B-1-A
 Misc. Info.: HFPO18C26
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180326-68335.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 26-Mar-2018 14:06:29 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK007

First Level Reviewer: meyera Date: 26-Mar-2018 13:55:45

Compound	Amount Added	Amount Recovered	% Rec.
\$ 3 13C3 HFPO-DA	10.0	9.37	93.72

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 280-107405-1

SDG No.: _____

Client Sample ID: FAY-D-5562MATTH-W1-1-0313 Lab Sample ID: 280-107405-2
18 _____

Matrix: Water Lab File ID: hfpo718C23020.d

Analysis Method: 8321A Date Collected: 03/13/2018 09:37

Extraction Method: 3535 Date Extracted: 03/19/2018 20:12

Sample wt/vol: 241.1 (mL) Date Analyzed: 03/26/2018 10:47

Con. Extract Vol.: 5 (mL) Dilution Factor: 1

Injection Volume: 20 (uL) GC Column: Synergi Hydro ID: _____

% Moisture: GPC Cleanup: (Y/N) N

Analysis Batch No.: 409067 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
13252-13-6	HFPO-DA	0.028		0.010	

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL02255	13C3 HFPO-DA	92		50-200

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180326-68335.b\hfpo718C23020.d
 Lims ID: 280-107405-C-2-A
 Client ID: FAY-D-5562MATTH-W1-1-031318
 Sample Type: Client
 Inject. Date: 26-Mar-2018 10:47:25 ALS Bottle#: 19 Worklist Smp#: 20
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 280-107405-C-2-A
 Misc. Info.: HFPO18C26
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180326-68335.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 26-Mar-2018 14:06:43 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK007

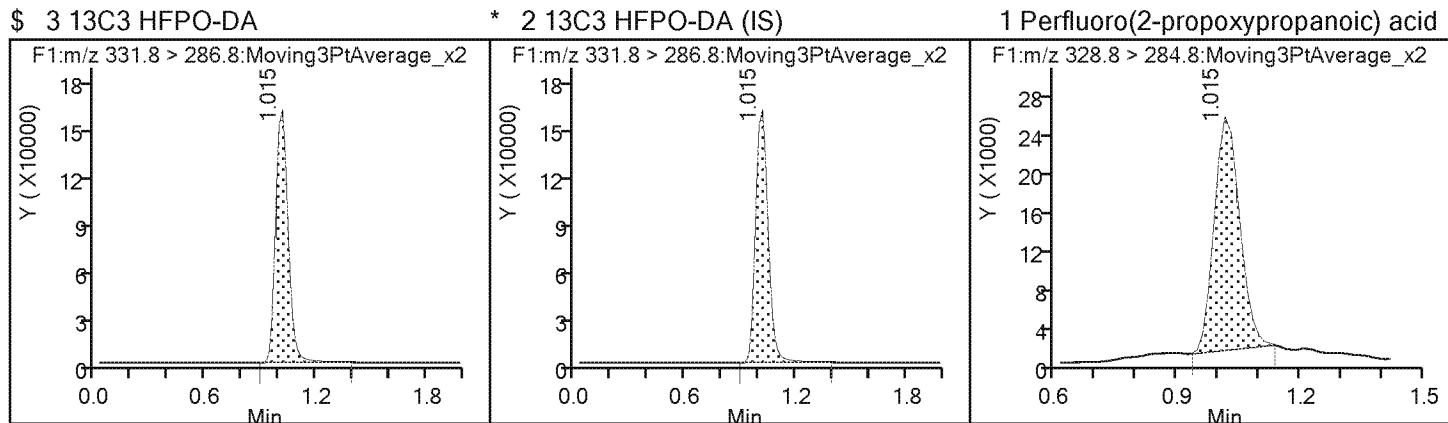
First Level Reviewer: meyera Date: 26-Mar-2018 13:55:50

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
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\$ 3 13C3 HFPO-DA
 331.8 > 286.8 1.015 1.045 -0.030 1.000 683732 9.16 3408
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 1.015 1.045 -0.030 683732 10.0 3408
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 1.015 1.056 -0.041 1.000 99830 1.34 24.5

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180326-68335.b\\hfpo718C23020.d
Injection Date: 26-Mar-2018 10:47:25 Instrument ID: LC_LCMS7
Lims ID: 280-107405-C-2-A Lab Sample ID: 280-107405-2
Client ID: FAY-D-5562MATTH-W1-1-031318
Operator ID: JBH ALS Bottle#: 19 Worklist Smp#: 20
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: HFPO Limit Group: LC - 8321A_HFPO_Du



TestAmerica Denver
Recovery Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180326-68335.b\hfpo718C23020.d
 Lims ID: 280-107405-C-2-A
 Client ID: FAY-D-5562MATTH-W1-1-031318
 Sample Type: Client
 Inject. Date: 26-Mar-2018 10:47:25 ALS Bottle#: 19 Worklist Smp#: 20
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 280-107405-C-2-A
 Misc. Info.: HFPO18C26
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180326-68335.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 26-Mar-2018 14:06:43 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK007

First Level Reviewer: meyera Date: 26-Mar-2018 13:55:50

Compound	Amount Added	Amount Recovered	% Rec.
\$ 3 13C3 HFPO-DA	10.0	9.16	91.58

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 280-107405-1

SDG No.: _____

Client Sample ID: FAY-D-5562MATTH-W1-2-0313 Lab Sample ID: 280-107405-3
18 _____

Matrix: Water Lab File ID: hfpo718C23023.d

Analysis Method: 8321A Date Collected: 03/13/2018 09:48

Extraction Method: 3535 Date Extracted: 03/19/2018 20:12

Sample wt/vol: 268.3 (mL) Date Analyzed: 03/26/2018 10:57

Con. Extract Vol.: 5 (mL) Dilution Factor: 1

Injection Volume: 20 (uL) GC Column: Synergi Hydro ID: _____

% Moisture: GPC Cleanup: (Y/N) N

Analysis Batch No.: 409067 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
13252-13-6	HFPO-DA	0.028		0.010	

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL02255	13C3 HFPO-DA	94		50-200

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180326-68335.b\hfpo718C23023.d
 Lims ID: 280-107405-B-3-A
 Client ID: FAY-D-5562MATTH-W1-2-031318
 Sample Type: Client
 Inject. Date: 26-Mar-2018 10:57:11 ALS Bottle#: 22 Worklist Smp#: 23
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 280-107405-B-3-A
 Misc. Info.: HFPO18C26
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180326-68335.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 26-Mar-2018 14:06:43 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK007

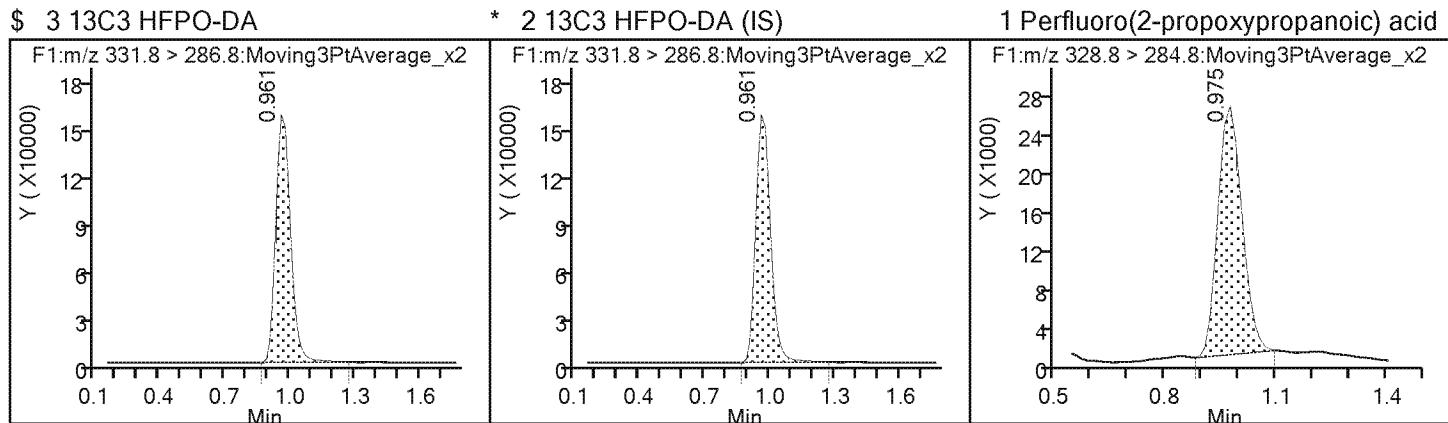
First Level Reviewer: meyera Date: 26-Mar-2018 13:55:57

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 0.961 1.045 -0.084 1.000 699080 9.36 2589
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 0.961 1.045 -0.084 1.000 699080 10.0 2589
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 0.975 1.056 -0.081 1.000 112931 1.48 28.8

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180326-68335.b\\hfpo718C23023.d
Injection Date: 26-Mar-2018 10:57:11 Instrument ID: LC_LCMS7
Lims ID: 280-107405-B-3-A Lab Sample ID: 280-107405-3
Client ID: FAY-D-5562MATTH-W1-2-031318
Operator ID: JBH ALS Bottle#: 22 Worklist Smp#: 23
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: HFPO Limit Group: LC - 8321A_HFPO_Du



TestAmerica Denver
Recovery Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180326-68335.b\hfpo718C23023.d
 Lims ID: 280-107405-B-3-A
 Client ID: FAY-D-5562MATTH-W1-2-031318
 Sample Type: Client
 Inject. Date: 26-Mar-2018 10:57:11 ALS Bottle#: 22 Worklist Smp#: 23
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 280-107405-B-3-A
 Misc. Info.: HFPO18C26
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180326-68335.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 26-Mar-2018 14:06:43 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK007

First Level Reviewer: meyera Date: 26-Mar-2018 13:55:57

Compound	Amount Added	Amount Recovered	% Rec.
\$ 3 13C3 HFPO-DA	10.0	9.36	93.64

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 280-107405-1

SDG No.: _____

Client Sample ID: FAY-D-FB-031318 Lab Sample ID: 280-107405-4

Matrix: Water Lab File ID: hfpo718C23024.d

Analysis Method: 8321A Date Collected: 03/13/2018 07:52

Extraction Method: 3535 Date Extracted: 03/19/2018 20:12

Sample wt/vol: 267 (mL) Date Analyzed: 03/26/2018 11:00

Con. Extract Vol.: 5 (mL) Dilution Factor: 1

Injection Volume: 20 (uL) GC Column: Synergi Hydro ID: _____

% Moisture: GPC Cleanup: (Y/N) N

Analysis Batch No.: 409067 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
13252-13-6	HFPO-DA	<0.010		0.010	

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL02255	13C3 HFPO-DA	94		50-200

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180326-68335.b\hfpo718C23024.d
 Lims ID: 280-107405-D-4-A
 Client ID: FAY-D-FB-031318
 Sample Type: Client
 Inject. Date: 26-Mar-2018 11:00:26 ALS Bottle#: 23 Worklist Smp#: 24
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 280-107405-D-4-A
 Misc. Info.: HFPO18C26
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180326-68335.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 26-Mar-2018 14:06:43 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK007

First Level Reviewer: meyera Date: 26-Mar-2018 13:55:59

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
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\$ 3 13C3 HFPO-DA
 331.8 > 286.8 0.961 1.045 -0.084 1.000 701468 9.40 3014
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 0.961 1.045 -0.084 701468 10.0 3014

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180326-68335.b\\hfpo718C23024.d

Injection Date: 26-Mar-2018 11:00:26

Instrument ID: LC_LCMS7

Lims ID: 280-107405-D-4-A

Lab Sample ID: 280-107405-4

Client ID: FAY-D-FB-031318

Operator ID: JBH

ALS Bottle#: 23 Worklist Smp#: 24

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

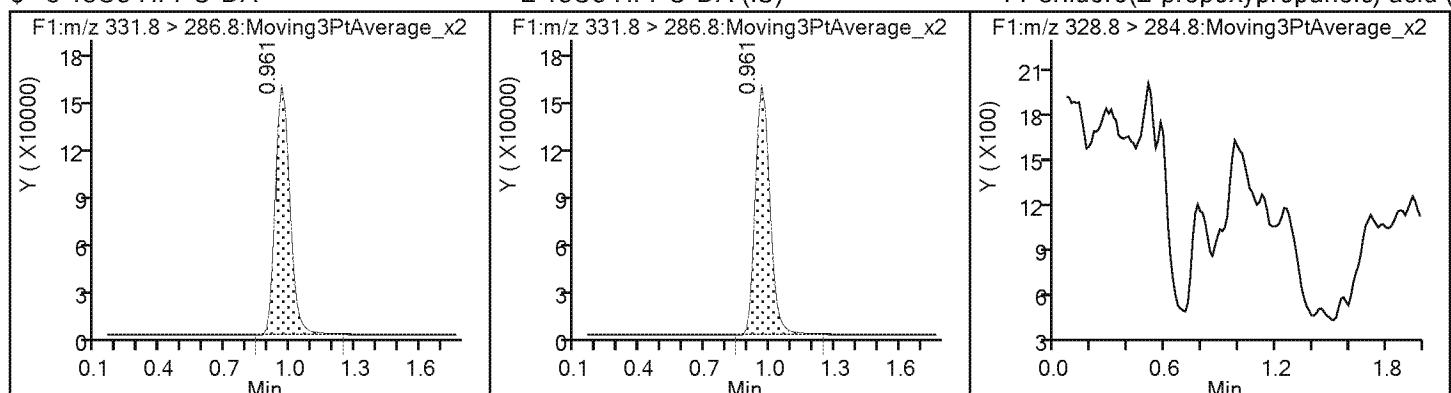
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid (ND)



TestAmerica Denver
Recovery Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180326-68335.b\hfpo718C23024.d
 Lims ID: 280-107405-D-4-A
 Client ID: FAY-D-FB-031318
 Sample Type: Client
 Inject. Date: 26-Mar-2018 11:00:26 ALS Bottle#: 23 Worklist Smp#: 24
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 280-107405-D-4-A
 Misc. Info.: HFPO18C26
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180326-68335.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 26-Mar-2018 14:06:43 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
 Process Host: XAWRK007

First Level Reviewer: meyera Date: 26-Mar-2018 13:55:59

Compound	Amount Added	Amount Recovered	% Rec.
\$ 3 13C3 HFPO-DA	10.0	9.40	93.96

FORM VI
LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
RETENTION TIME SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-107405-1 Analy Batch No.: 390728

SDG No.: _____

Instrument ID: LC_LCMS7 GC Column: Synergi Hyd ID: _____ Heated Purge: (Y/N) N

Calibration Start Date: 10/10/2017 09:35 Calibration End Date: 10/10/2017 09:58 Calibration ID: 30558

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD001 280-390728/3	hfpo717J10026.d
Level 2	STD002 280-390728/4	hfpo717J10027.d
Level 3	STD003 280-390728/5	hfpo717J10028.d
Level 4	STD004 280-390728/6	hfpo717J10029.d
Level 5	STD005 280-390728/7	hfpo717J10030.d
Level 6	STD006 280-390728/8	hfpo717J10031.d
Level 7	STD007 280-390728/9	hfpo717J10032.d
Level 8	STD008 280-390728/10	hfpo717J10033.d

ANALYTE	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6	LVL 7	LVL 8		RT WINDOW	AVG RT
Perfluoro(2-propoxypropanoic) acid	0.893	0.880	0.880	0.880	0.893	0.880	0.880	0.893		0.385 - 1.385	0.885
13C3 HFPO-DA	0.880	0.880	0.880	0.880	0.880	0.880	0.880	0.880		0.380 - 1.380	0.880

FORM VI
LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Denver

Job No.: 280-107405-1

Analy Batch No.: 390728

SDG No.: _____

Instrument ID: LC_LCMS7 GC Column: Synergi Hyd ID: _____ Heated Purge: (Y/N) N

Calibration Start Date: 10/10/2017 09:35 Calibration End Date: 10/10/2017 09:58 Calibration ID: 30558

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD001 280-390728/3	hfpo717J10026.d
Level 2	STD002 280-390728/4	hfpo717J10027.d
Level 3	STD003 280-390728/5	hfpo717J10028.d
Level 4	STD004 280-390728/6	hfpo717J10029.d
Level 5	STD005 280-390728/7	hfpo717J10030.d
Level 6	STD006 280-390728/8	hfpo717J10031.d
Level 7	STD007 280-390728/9	hfpo717J10032.d
Level 8	STD008 280-390728/10	hfpo717J10033.d

ANALYTE	CF				CURVE TYPE	COEFFICIENT			#	MIN CF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1	LVL 2	LVL 3	LVL 4		B	M1	M2								
13C3 HFPO-DA	73075 74460	74523 73194	75043 72919	71803 70142	Ave		73144.6750				2.2	30.0				

Note: The M1 coefficient is the same as Ave CF for an Ave curve type.

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Denver Job No.: 280-107405-1 Analy Batch No.: 390728

SDG No.: _____

Instrument ID: LC_LCMS7 GC Column: Synergi Hyd ID: _____ Heated Purge: (Y/N) N

Calibration Start Date: 10/10/2017 09:35 Calibration End Date: 10/10/2017 09:58 Calibration ID: 30558

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5		B	M1	M2								
Perfluoro(2-propoxypropanoic) acid	1.6980 1.0102	1.7128 0.9824	1.1896 1.0419	1.1637	1.0154	Lin1	0.2185	1.0121							0.9980		0.9900

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Denver Job No.: 280-107405-1 Analy Batch No.: 390728
SDG No.: _____
Instrument ID: LC_LCMS7 GC Column: Synergi Hyd ID: _____ Heated Purge: (Y/N) N
Calibration Start Date: 10/10/2017 09:35 Calibration End Date: 10/10/2017 09:58 Calibration ID: 30558

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD001 280-390728/3	hfpo717J10026.d
Level 2	STD002 280-390728/4	hfpo717J10027.d
Level 3	STD003 280-390728/5	hfpo717J10028.d
Level 4	STD004 280-390728/6	hfpo717J10029.d
Level 5	STD005 280-390728/7	hfpo717J10030.d
Level 6	STD006 280-390728/8	hfpo717J10031.d
Level 7	STD007 280-390728/9	hfpo717J10032.d
Level 8	STD008 280-390728/10	hfpo717J10033.d

ANALYTE	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
		LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5
13C3 HFPO-DA	Ave	730749 731935	745227 729188	750427 701420	718028	744600	10.0 10.0	10.0 10.0	10.0 10.0	10.0	10.0

Curve Type Legend:

Ave = Average

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Denver Job No.: 280-107405-1 Analy Batch No.: 390728

SDG No.: _____

Instrument ID: LC_LCMS7 GC Column: Synergi Hyd ID: _____ Heated Purge: (Y/N) N

Calibration Start Date: 10/10/2017 09:35 Calibration End Date: 10/10/2017 09:58 Calibration ID: 30558

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD001 280-390728/3	hfpo717J10026.d
Level 2	STD002 280-390728/4	hfpo717J10027.d
Level 3	STD003 280-390728/5	hfpo717J10028.d
Level 4	STD004 280-390728/6	hfpo717J10029.d
Level 5	STD005 280-390728/7	hfpo717J10030.d
Level 6	STD006 280-390728/8	hfpo717J10031.d
Level 7	STD007 280-390728/9	hfpo717J10032.d
Level 8	STD008 280-390728/10	hfpo717J10033.d

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5
Perfluoro(2-propoxypropanoic) acid	13CP ODA	Lin1	31020 739399	63823 1790812	89272 3654104	167109	378047	0.250 10.0	0.500 25.0	1.00 50.0	2.00	5.00

Curve Type Legend:

Lin1 = Linear 1/conc ISTD

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10026.d
 Lims ID: std001
 Client ID:
 Sample Type: IC Calib Level: 1
 Inject. Date: 10-Oct-2017 09:35:28 ALS Bottle#: 2 Worklist Smp#: 3
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: L1
 Misc. Info.: HFPO17J10
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 10-Oct-2017 12:51:45 Calib Date: 10-Oct-2017 09:58:07
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10033.d

Column 1 : Det: F1:MRM
 Process Host: XAWRK005

First Level Reviewer: meyera Date: 10-Oct-2017 11:50:42

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 0.880 0.880 0.0 1.000 730749 10.0 397
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 0.880 0.880 0.0 1.000 730749 10.0 397
 1 Perfluoro(2-propoxypropanoic) acid M
 328.8 > 284.8 0.893 0.885 0.008 1.000 31020 0.2036 14.1 M

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

HFPO_CAL-1_00031 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20171010-63483.b\\hfp0717J10026.d

Injection Date: 10-Oct-2017 09:35:28

Instrument ID: LC_LCMS7

Lims ID: std001

Client ID:

Operator ID: JBH

ALS Bottle#: 2 Worklist Smp#: 3

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

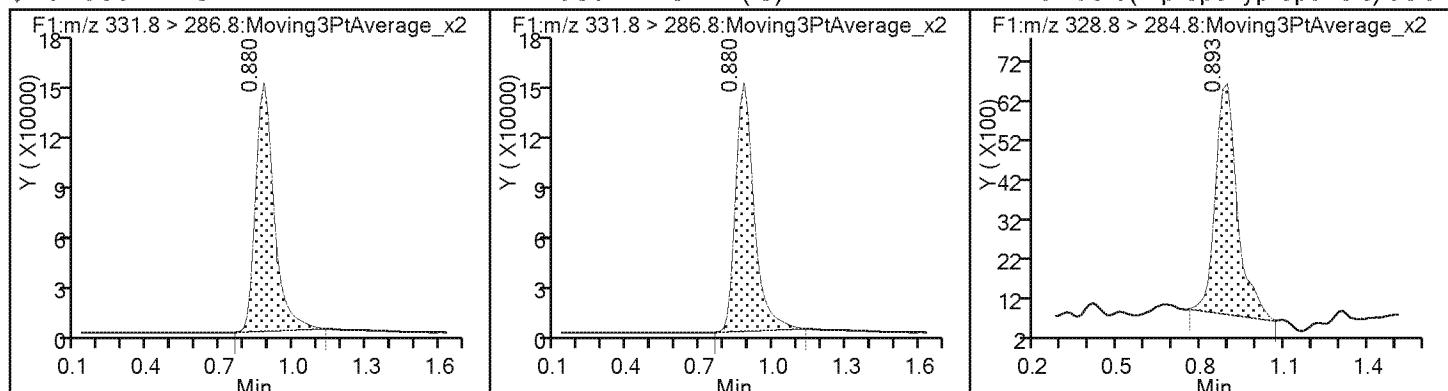
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid (M)



TestAmerica Denver

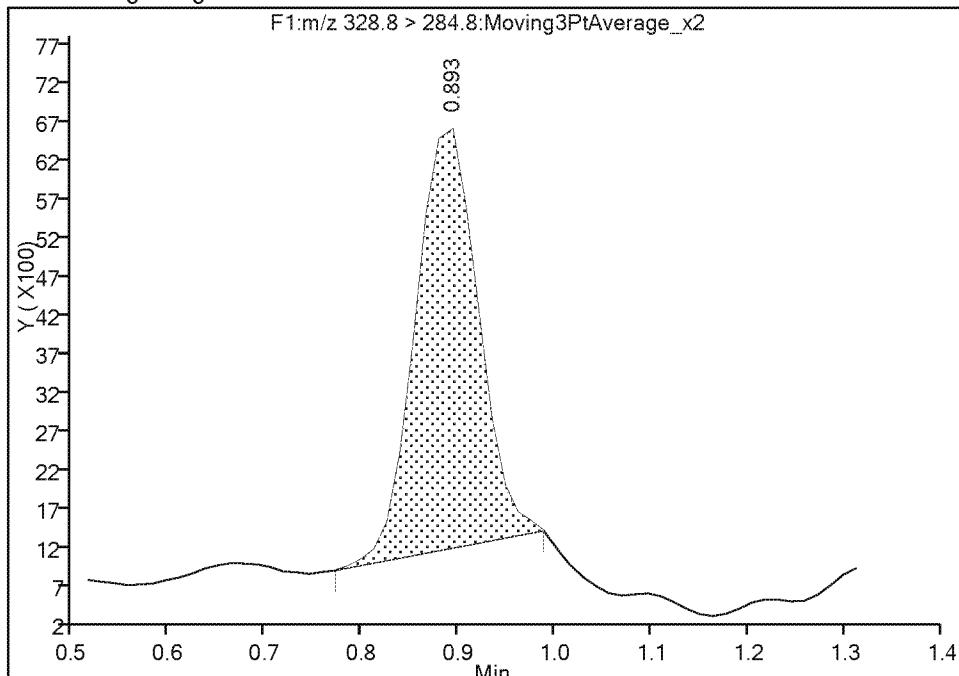
Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20171010-63483.b\\hfpo717J10026.d
 Injection Date: 10-Oct-2017 09:35:28 Instrument ID: LC_LCMS7
 Lims ID: std001
 Client ID:
 Operator ID: JBH ALS Bottle#: 2 Worklist Smp#: 3
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Method: HFPO Limit Group: LC - 8321A_HFPO_Du
 Column: Detector F1:MRM

1 Perfluoro(2-propoxypropanoic) acid, CAS: 13252-13-6

Signal: 1

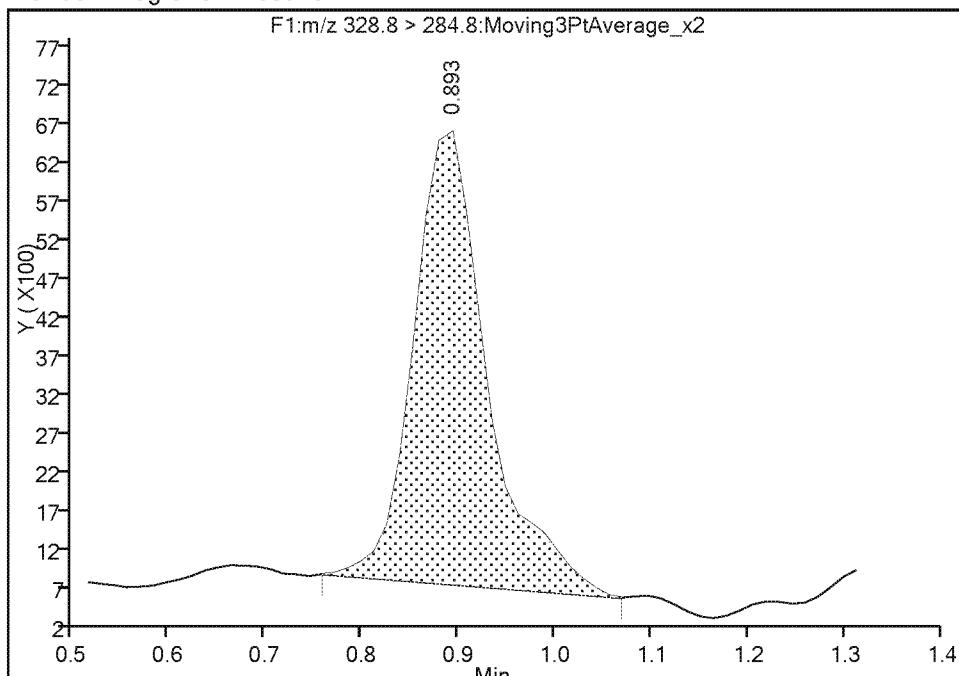
Processing Integration Results

RT: 0.89
 Area: 24407
 Amount: 0.162386
 Amount Units: ug/l



Manual Integration Results

RT: 0.89
 Area: 31020
 Amount: 0.203553
 Amount Units: ug/l



Reviewer: meyera, 10-Oct-2017 11:50:40

Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10027.d
 Lims ID: std002
 Client ID:
 Sample Type: IC Calib Level: 2
 Inject. Date: 10-Oct-2017 09:38:42 ALS Bottle#: 3 Worklist Smp#: 4
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: L2
 Misc. Info.: HFPO17J10
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 10-Oct-2017 12:51:46 Calib Date: 10-Oct-2017 09:58:07
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10033.d

Column 1 : Det: F1:MRM
 Process Host: XAWRK005

First Level Reviewer: meyera Date: 10-Oct-2017 11:50:49

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

* 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 0.880 0.880 0.0 745227 10.0 452
 \$ 3 13C3 HFPO-DA
 331.8 > 286.8 0.880 0.880 0.0 1.000 745227 10.2 452
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 0.880 0.885 -0.005 1.000 63823 0.6303 36.5

Reagents:

HFPO_CAL-2_00032 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20171010-63483.b\\hfp0717J10027.d

Injection Date: 10-Oct-2017 09:38:42 Instrument ID: LC_LCMS7

Lims ID: std002

Client ID:

Operator ID: JBH ALS Bottle#: 3 Worklist Smp#: 4

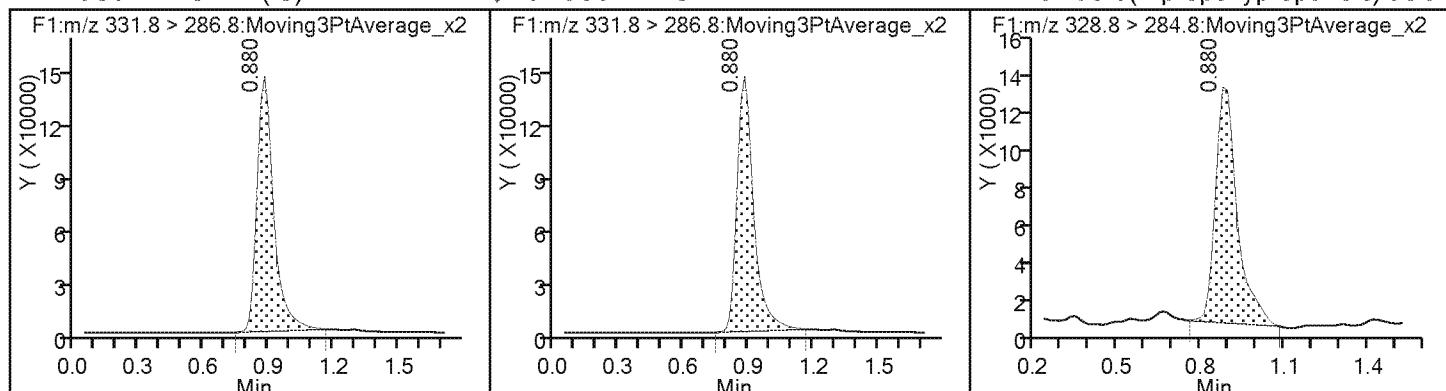
Injection Vol: 20.0 ul Dil. Factor: 1.0000

Method: HFPO Limit Group: LC - 8321A_HFPO_Du

* 2 13C3 HFPO-DA (IS)

\$ 3 13C3 HFPO-DA

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10028.d
 Lims ID: std003
 Client ID:
 Sample Type: IC Calib Level: 3
 Inject. Date: 10-Oct-2017 09:41:56 ALS Bottle#: 4 Worklist Smp#: 5
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: L3
 Misc. Info.: HFPO17J10
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 10-Oct-2017 12:51:47 Calib Date: 10-Oct-2017 09:58:07
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10033.d

Column 1 : Det: F1:MRM
 Process Host: XAWRK005

First Level Reviewer: meyera Date: 10-Oct-2017 11:50:52

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 0.880 0.880 0.0 1.000 750427 10.3 417
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 0.880 0.880 0.0 1.000 750427 10.0 417
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 0.880 0.885 -0.005 1.000 89272 0.9595 50.3

Reagents:

HFPO_CAL-3_00031 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20171010-63483.b\\hfp0717J10028.d

Injection Date: 10-Oct-2017 09:41:56 Instrument ID: LC_LCMS7

Lims ID: std003

Client ID:

Operator ID: JBH ALS Bottle#: 4 Worklist Smp#: 5

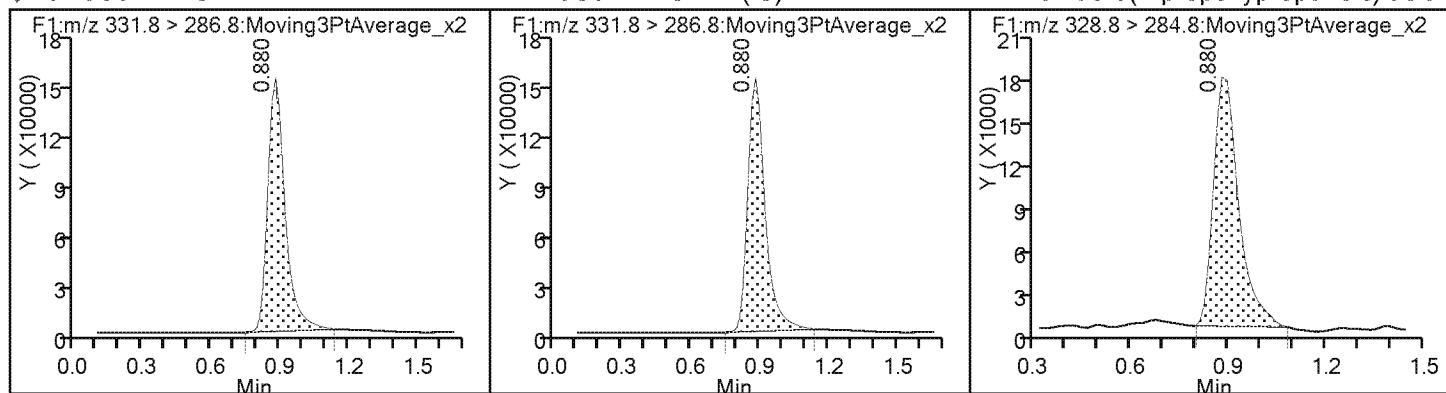
Injection Vol: 20.0 ul Dil. Factor: 1.0000

Method: HFPO Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10029.d
 Lims ID: std004
 Client ID:
 Sample Type: IC Calib Level: 4
 Inject. Date: 10-Oct-2017 09:45:11 ALS Bottle#: 5 Worklist Smp#: 6
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: L4
 Misc. Info.: HFPO17J10
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 10-Oct-2017 12:51:47 Calib Date: 10-Oct-2017 09:58:07
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10033.d

Column 1 : Det: F1:MRM

Process Host: XAWRK005

First Level Reviewer: meyera Date: 10-Oct-2017 11:50:55

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

* 2 13C3 HFPO-DA (IS)

331.8 > 286.8 0.880 0.880 0.0 718028 10.0 438

\$ 3 13C3 HFPO-DA

331.8 > 286.8 0.880 0.880 0.0 1.000 718028 9.82 438

1 Perfluoro(2-propoxypropanoic) acid

328.8 > 284.8 0.880 0.885 -0.005 1.000 167109 2.08 143

Reagents:

HFPO_CAL-4_00031 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20171010-63483.b\\hfp0717J10029.d

Injection Date: 10-Oct-2017 09:45:11 Instrument ID: LC_LCMS7

Lims ID: std004

Client ID:

Operator ID: JBH ALS Bottle#: 5 Worklist Smp#: 6

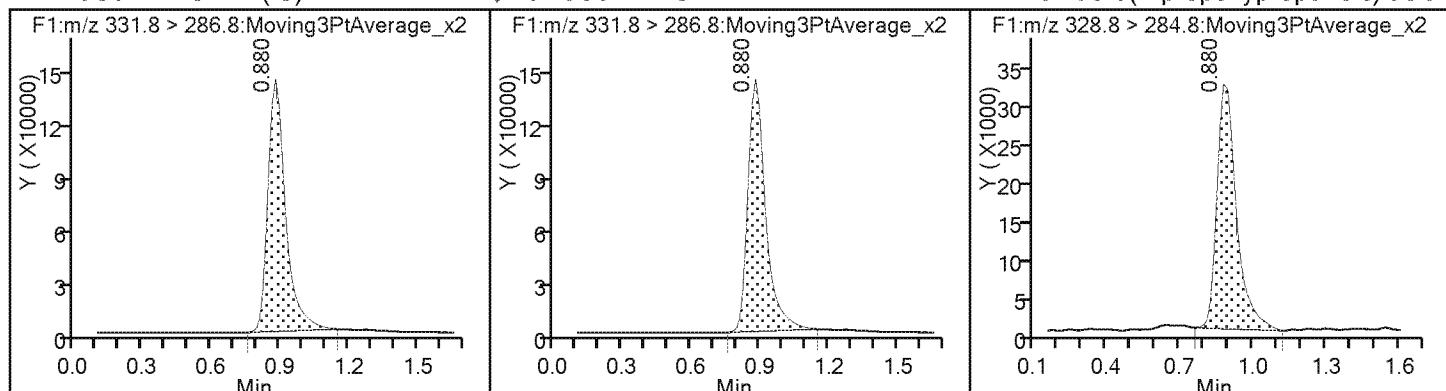
Injection Vol: 20.0 ul Dil. Factor: 1.0000

Method: HFPO Limit Group: LC - 8321A_HFPO_Du

* 2 13C3 HFPO-DA (IS)

\$ 3 13C3 HFPO-DA

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10030.d
 Lims ID: std005
 Client ID:
 Sample Type: IC Calib Level: 5
 Inject. Date: 10-Oct-2017 09:48:25 ALS Bottle#: 6 Worklist Smp#: 7
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: L5
 Misc. Info.: HFPO17J10
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 10-Oct-2017 12:51:48 Calib Date: 10-Oct-2017 09:58:07
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10033.d

Column 1 : Det: F1:MRM

Process Host: XAWRK005

First Level Reviewer: meyera Date: 10-Oct-2017 11:50:57

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA

331.8 > 286.8 0.880 0.880 0.0 1.000 744600 10.2 433

* 2 13C3 HFPO-DA (IS)

331.8 > 286.8 0.880 0.880 0.0 744600 10.0 433

1 Perfluoro(2-propoxypropanoic) acid

328.8 > 284.8 0.893 0.885 0.008 1.000 378047 4.80 223

Reagents:

HFPO_CAL-5_00070 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20171010-63483.b\\hfpo717J10030.d

Injection Date: 10-Oct-2017 09:48:25 Instrument ID: LC_LCMS7

Lims ID: std005

Client ID:

Operator ID: JBH ALS Bottle#: 6 Worklist Smp#: 7

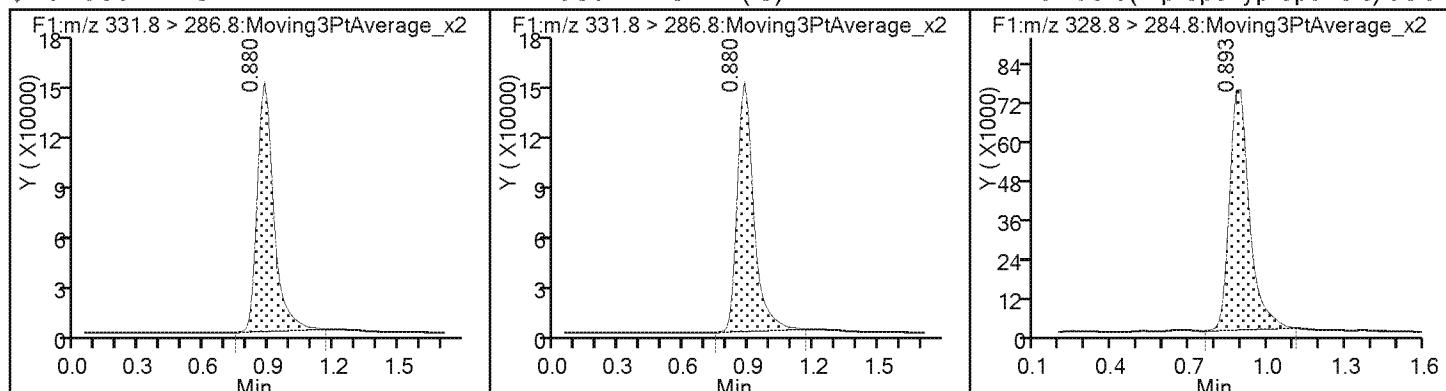
Injection Vol: 20.0 ul Dil. Factor: 1.0000

Method: HFPO Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10031.d
 Lims ID: std006
 Client ID:
 Sample Type: IC Calib Level: 6
 Inject. Date: 10-Oct-2017 09:51:39 ALS Bottle#: 7 Worklist Smp#: 8
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: L6
 Misc. Info.: HFPO17J10
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 10-Oct-2017 12:51:49 Calib Date: 10-Oct-2017 09:58:07
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10033.d

Column 1 : Det: F1:MRM
 Process Host: XAWRK005

First Level Reviewer: meyera Date: 10-Oct-2017 11:51:00

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

* 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 0.880 0.880 0.0 731935 10.0 379
 \$ 3 13C3 HFPO-DA
 331.8 > 286.8 0.880 0.880 0.0 1.000 731935 10.0 379
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 0.880 0.885 -0.005 1.000 739399 9.77 298

Reagents:

HFPO_CAL-6_00070 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20171010-63483.b\\hfpo717J10031.d

Injection Date: 10-Oct-2017 09:51:39 Instrument ID: LC_LCMS7

Lims ID: std006

Client ID:

Operator ID: JBH ALS Bottle#: 7 Worklist Smp#: 8

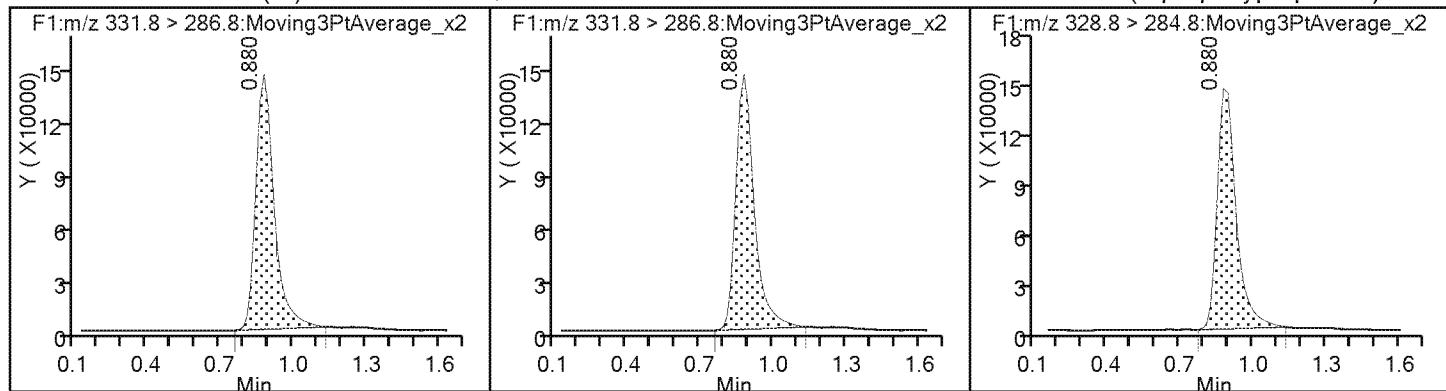
Injection Vol: 20.0 ul Dil. Factor: 1.0000

Method: HFPO Limit Group: LC - 8321A_HFPO_Du

* 2 13C3 HFPO-DA (IS)

\$ 3 13C3 HFPO-DA

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10032.d
 Lims ID: std007
 Client ID:
 Sample Type: IC Calib Level: 7
 Inject. Date: 10-Oct-2017 09:54:53 ALS Bottle#: 8 Worklist Smp#: 9
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: L7
 Misc. Info.: HFPO17J10
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 10-Oct-2017 12:51:50 Calib Date: 10-Oct-2017 09:58:07
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10033.d

Column 1 : Det: F1:MRM
 Process Host: XAWRK005

First Level Reviewer: meyera Date: 10-Oct-2017 11:51:04

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 0.880 0.880 0.0 1.000 729188 9.97 404
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 0.880 0.880 0.0 1.000 729188 10.0 404
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 0.880 0.885 -0.005 1.000 1790812 24.0 386

Reagents:

HFPO_CAL-7_00031 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20171010-63483.b\\hfp0717J10032.d

Injection Date: 10-Oct-2017 09:54:53 Instrument ID: LC_LCMS7

Lims ID: std007

Client ID:

Operator ID: JBH

ALS Bottle#: 8 Worklist Smp#: 9

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

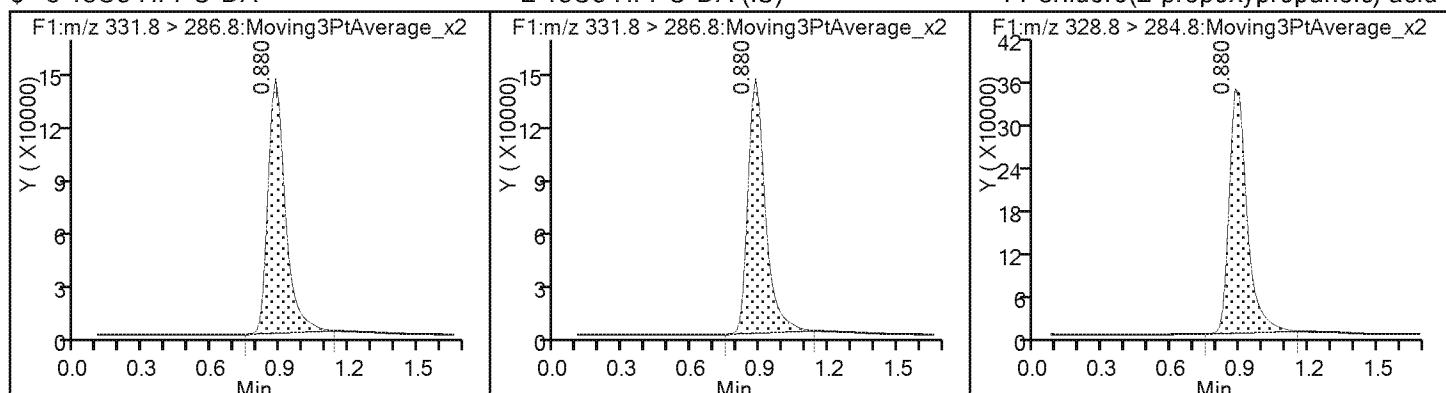
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10033.d
 Lims ID: std008
 Client ID:
 Sample Type: IC Calib Level: 8
 Inject. Date: 10-Oct-2017 09:58:07 ALS Bottle#: 9 Worklist Smp#: 10
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: L8
 Misc. Info.: HFPO17J10
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 10-Oct-2017 12:51:51 Calib Date: 10-Oct-2017 09:58:07
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10033.d

Column 1 : Det: F1:MRM

Process Host: XAWRK005

First Level Reviewer: meyera Date: 10-Oct-2017 11:51:08

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

* 2 13C3 HFPO-DA (IS)

331.8 > 286.8 0.880 0.880 0.0 701420 10.0 373

\$ 3 13C3 HFPO-DA

331.8 > 286.8 0.880 0.880 0.0 1.000 701420 9.59 373

1 Perfluoro(2-propoxypropanoic) acid

328.8 > 284.8 0.893 0.885 0.008 1.000 3654104 51.3 421

Reagents:

HFPO_CAL-8_00031 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20171010-63483.b\\hfp0717J10033.d

Injection Date: 10-Oct-2017 09:58:07 Instrument ID: LC_LCMS7

Lims ID: std008

Client ID:

Operator ID: JBH

ALS Bottle#: 9 Worklist Smp#: 10

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

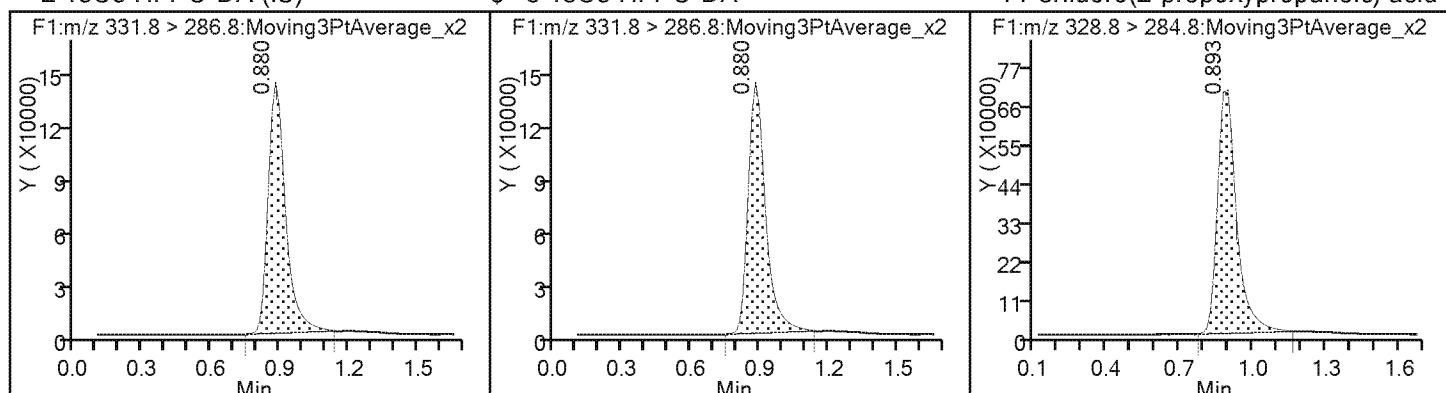
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

* 2 13C3 HFPO-DA (IS)

\$ 3 13C3 HFPO-DA

1 Perfluoro(2-propoxypropanoic) acid



FORM VI
LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
RETENTION TIME SUMMARY

Lab Name: TestAmerica Denver Job No.: 280-107405-1 Analy Batch No.: 404345
SDG No.: _____
Instrument ID: LC_LCMS7 GC Column: Synergi Hyd ID: _____ Heated Purge: (Y/N) N
Calibration Start Date: 02/08/2018 13:05 Calibration End Date: 02/08/2018 13:31 Calibration ID: 31612

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD001 280-404345/3	hfpo718B08034.d
Level 2	STD002 280-404345/4	hfpo718B08035.d
Level 3	STD003 280-404345/5	hfpo718B08036.d
Level 4	STD004 280-404345/6	hfpo718B08037.d
Level 5	STD005 280-404345/7	hfpo718B08038.d
Level 6	STD006 280-404345/8	hfpo718B08039.d
Level 7	STD007 280-404345/9	hfpo718B08040.d
Level 8	STD008 280-404345/10	hfpo718B08041.d
Level 9	STD009 280-404345/11	hfpo718B08042.d

ANALYTE	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6	LVL 7	LVL 8	LVL 9	RT WINDOW	AVG RT
HFPO-DA	1.056	1.056	1.056	1.056	1.056	1.056	1.056	1.056	1.056	0.556 - 1.556	1.056
13C3 HFPO-DA	1.042	1.042	1.042	1.042	1.042	1.042	1.042	1.056	1.056	0.545 - 1.545	1.045

FORM VI
LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Denver

Job No.: 280-107405-1

Analy Batch No.: 404345

SDG No.:

Instrument ID: LC_LCMS7 GC Column: Synergi Hyd ID: Heated Purge: (Y/N) N

Calibration Start Date: 02/08/2018 13:05 Calibration End Date: 02/08/2018 13:31 Calibration ID: 31612

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD001 280-404345/3	hfpo718B08034.d
Level 2	STD002 280-404345/4	hfpo718B08035.d
Level 3	STD003 280-404345/5	hfpo718B08036.d
Level 4	STD004 280-404345/6	hfpo718B08037.d
Level 5	STD005 280-404345/7	hfpo718B08038.d
Level 6	STD006 280-404345/8	hfpo718B08039.d
Level 7	STD007 280-404345/9	hfpo718B08040.d
Level 8	STD008 280-404345/10	hfpo718B08041.d
Level 9	STD009 280-404345/11	hfpo718B08042.d

ANALYTE	CF				CURVE TYPE	COEFFICIENT			#	MIN CF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1	LVL 2	LVL 3	LVL 4		B	M1	M2								
13C3 HFPO-DA	75771 75244 71284	75964 75940	72010 75039	77000 73687	Ave		74659.8778				2.6		30.0			

Note: The M1 coefficient is the same as Ave CF for an Ave curve type.

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Denver Job No.: 280-107405-1 Analy Batch No.: 404345

SDG No.: _____

Instrument ID: LC_LCMS7 GC Column: Synergi Hyd ID: _____ Heated Purge: (Y/N) N

Calibration Start Date: 02/08/2018 13:05 Calibration End Date: 02/08/2018 13:31 Calibration ID: 31612

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5		B	M1	M2								
HFPO-DA	1.1630 1.1128	1.1250 1.0911	1.0756 1.0665	1.0527 1.0507	1.1211	Lin1	0.0361	1.0638							1.0000		0.9900

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Denver Job No.: 280-107405-1 Analy Batch No.: 404345

SDG No.: _____

Instrument ID: LC_LCMS7 GC Column: Synergi Hyd ID: _____ Heated Purge: (Y/N) N

Calibration Start Date: 02/08/2018 13:05 Calibration End Date: 02/08/2018 13:31 Calibration ID: 31612

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD001 280-404345/3	hfpo718B08034.d
Level 2	STD002 280-404345/4	hfpo718B08035.d
Level 3	STD003 280-404345/5	hfpo718B08036.d
Level 4	STD004 280-404345/6	hfpo718B08037.d
Level 5	STD005 280-404345/7	hfpo718B08038.d
Level 6	STD006 280-404345/8	hfpo718B08039.d
Level 7	STD007 280-404345/9	hfpo718B08040.d
Level 8	STD008 280-404345/10	hfpo718B08041.d
Level 9	STD009 280-404345/11	hfpo718B08042.d

ANALYTE	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
		LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5
13C3 HFPO-DA	Ave	757714 759397	759642 750388	720099 736869	769995 712841	752444	10.0 10.0	10.0 10.0	10.0 10.0	10.0 10.0	10.0

Curve Type Legend:

Ave = Average

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Denver

Job No.: 280-107405-1

Analy Batch No.: 404345

SDG No.:

Instrument ID: LC_LCMS7 GC Column: Synergi Hyd ID: Heated Purge: (Y/N) N

Calibration Start Date: 02/08/2018 13:05 Calibration End Date: 02/08/2018 13:31 Calibration ID: 31612

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD001 280-404345/3	hfpo718B08034.d
Level 2	STD002 280-404345/4	hfpo718B08035.d
Level 3	STD003 280-404345/5	hfpo718B08036.d
Level 4	STD004 280-404345/6	hfpo718B08037.d
Level 5	STD005 280-404345/7	hfpo718B08038.d
Level 6	STD006 280-404345/8	hfpo718B08039.d
Level 7	STD007 280-404345/9	hfpo718B08040.d
Level 8	STD008 280-404345/10	hfpo718B08041.d
Level 9	STD009 280-404345/11	hfpo718B08042.d

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5
HFPO-DA	13CP ODA	Lin1	22031 845082	42730 2046873	77455 3929397	162117 7489478	421775	0.250 10.0	0.500 25.0	1.00 50.0	2.00 100	5.00

Curve Type Legend:

Lin1 = Linear 1/conc ISTD

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08034.d
 Lims ID: std001
 Client ID:
 Sample Type: IC Calib Level: 1
 Inject. Date: 08-Feb-2018 13:05:38 ALS Bottle#: 2 Worklist Smp#: 3
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: L1
 Misc. Info.: HFPO18B08
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 08-Feb-2018 15:24:13 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
 Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:19:04

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

* 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 1.042 1.045 -0.003 757714 10.0 1562

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 1.042 1.045 -0.003 1.000 757714 10.1 1562
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 1.056 1.056 0.0 1.000 22031 0.2394 4.4 M

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

HFPO_CAL-1_00032 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180208-67079.b\\hfpo718B08034.d

Injection Date: 08-Feb-2018 13:05:38

Instrument ID: LC_LCMS7

Lims ID: std001

Client ID:

Operator ID: JBH

ALS Bottle#: 2 Worklist Smp#: 3

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

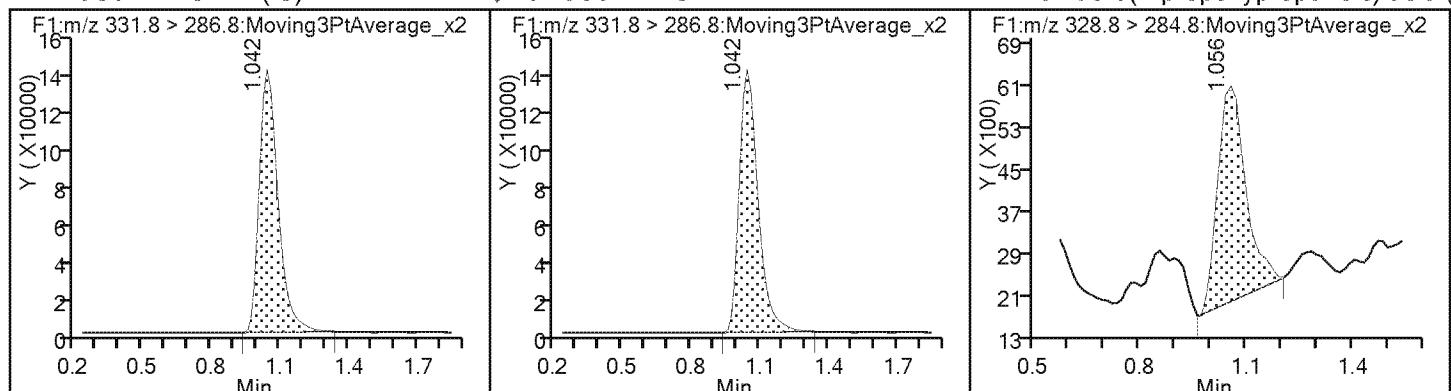
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

* 2 13C3 HFPO-DA (IS)

\$ 3 13C3 HFPO-DA

1 Perfluoro(2-propoxypropanoic) acid (M)



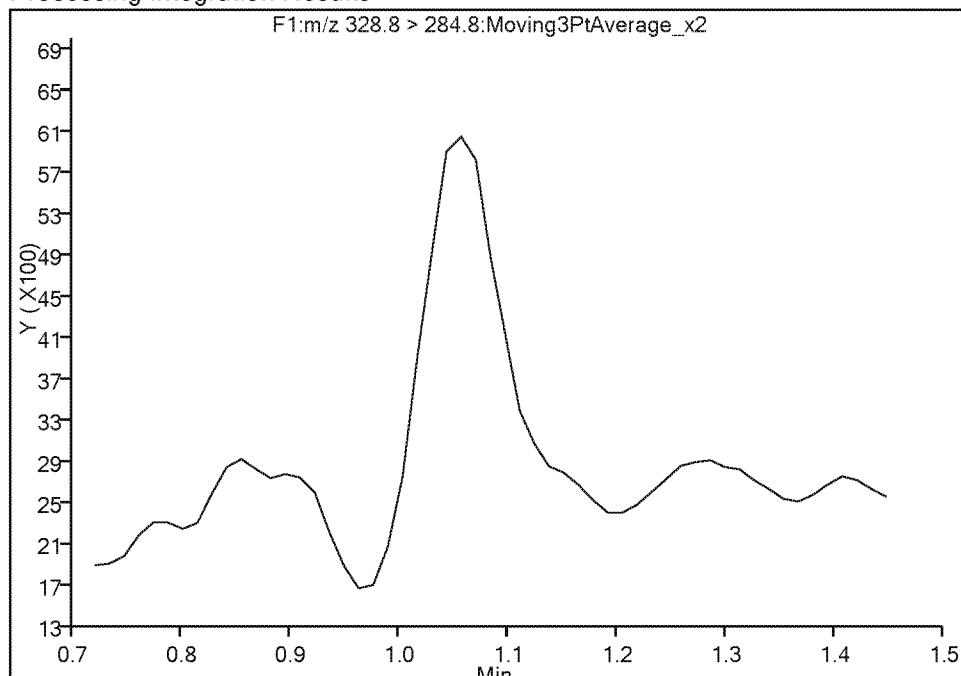
TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180208-67079.b\\hfpo718B08034.d
 Injection Date: 08-Feb-2018 13:05:38 Instrument ID: LC_LCMS7
 Lims ID: std001
 Client ID:
 Operator ID: JBH ALS Bottle#: 2 Worklist Smp#: 3
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Method: HFPO Limit Group: LC - 8321A_HFPO_Du
 Column: Detector F1:MRM

1 Perfluoro(2-propoxypropanoic) acid, CAS: 13252-13-6
 Signal: 1

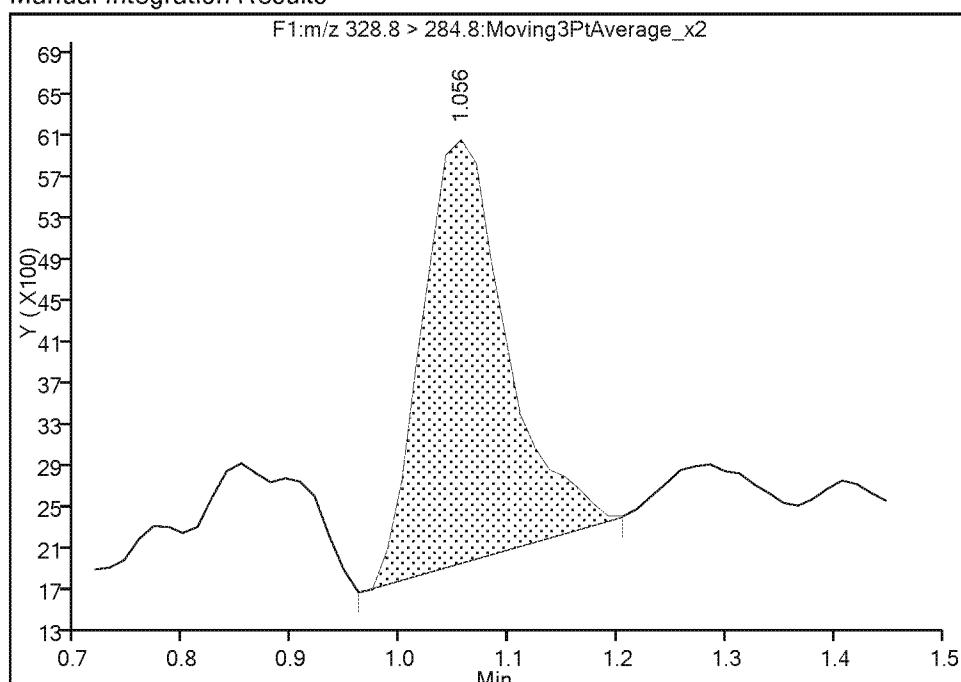
Not Detected
 Expected RT: 1.06

Processing Integration Results



RT: 1.06
 Area: 22031
 Amount: 0.239356
 Amount Units: ug/l

Manual Integration Results



Reviewer: meyera, 08-Feb-2018 15:19:01

Audit Action: Manually Integrated

Audit Reason: Assign Peak

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08035.d
 Lims ID: std002
 Client ID:
 Sample Type: IC Calib Level: 2
 Inject. Date: 08-Feb-2018 13:08:52 ALS Bottle#: 3 Worklist Smp#: 4
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: L2
 Misc. Info.: HFPO18B08
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 08-Feb-2018 15:24:14 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
 Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:19:16

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 1.042 1.045 -0.003 1.000 759642 10.2 1267
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 1.042 1.045 -0.003 1.000 759642 10.0 1267
 1 Perfluoro(2-propoxypropanoic) acid M
 328.8 > 284.8 1.056 1.056 0.0 1.000 42730 0.4948 6.5 M

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

HFPO_CAL-2_00033 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180208-67079.b\\hfp0718B08035.d

Injection Date: 08-Feb-2018 13:08:52 Instrument ID: LC_LCMS7

Lims ID: std002

Client ID:

Operator ID: JBH ALS Bottle#: 3 Worklist Smp#: 4

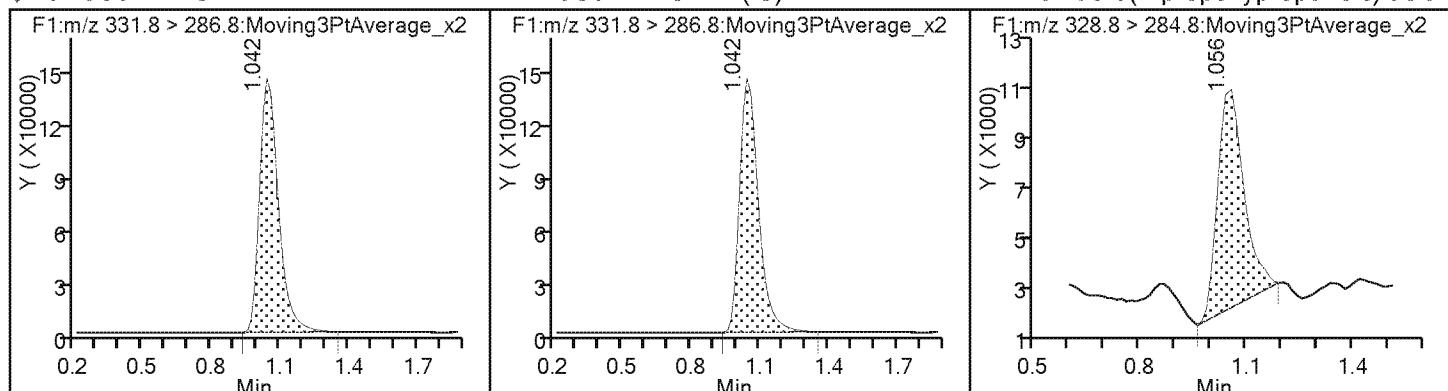
Injection Vol: 20.0 ul Dil. Factor: 1.0000

Method: HFPO Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid (M)



TestAmerica Denver

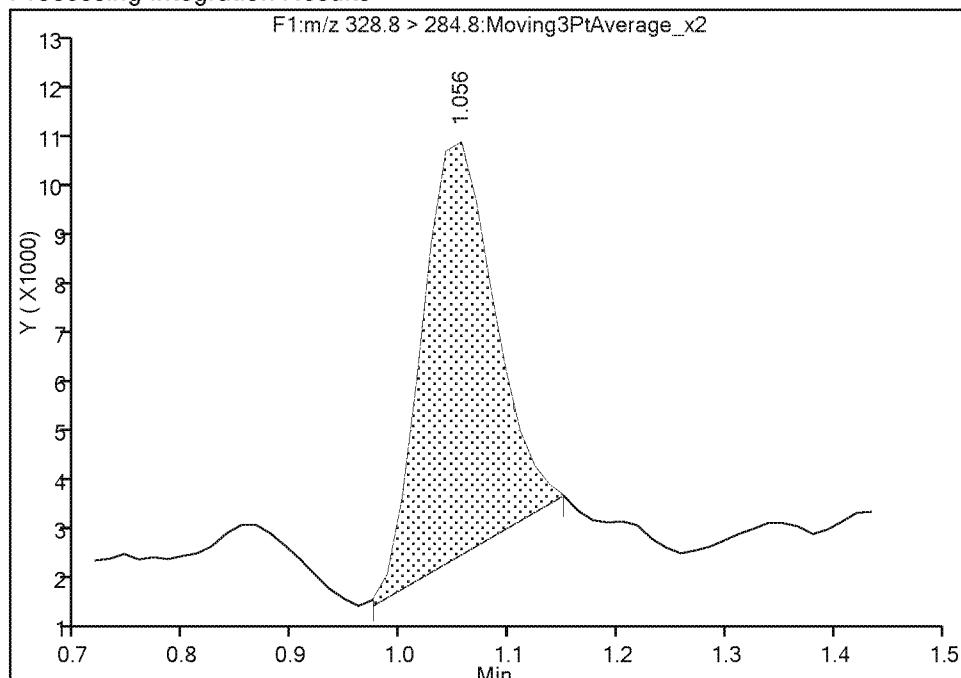
Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180208-67079.b\\hfpo718B08035.d
 Injection Date: 08-Feb-2018 13:08:52 Instrument ID: LC_LCMS7
 Lims ID: std002
 Client ID:
 Operator ID: JBH ALS Bottle#: 3 Worklist Smp#: 4
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Method: HFPO Limit Group: LC - 8321A_HFPO_Du
 Column: Detector F1:MRM

1 Perfluoro(2-propoxypropanoic) acid, CAS: 13252-13-6

Signal: 1

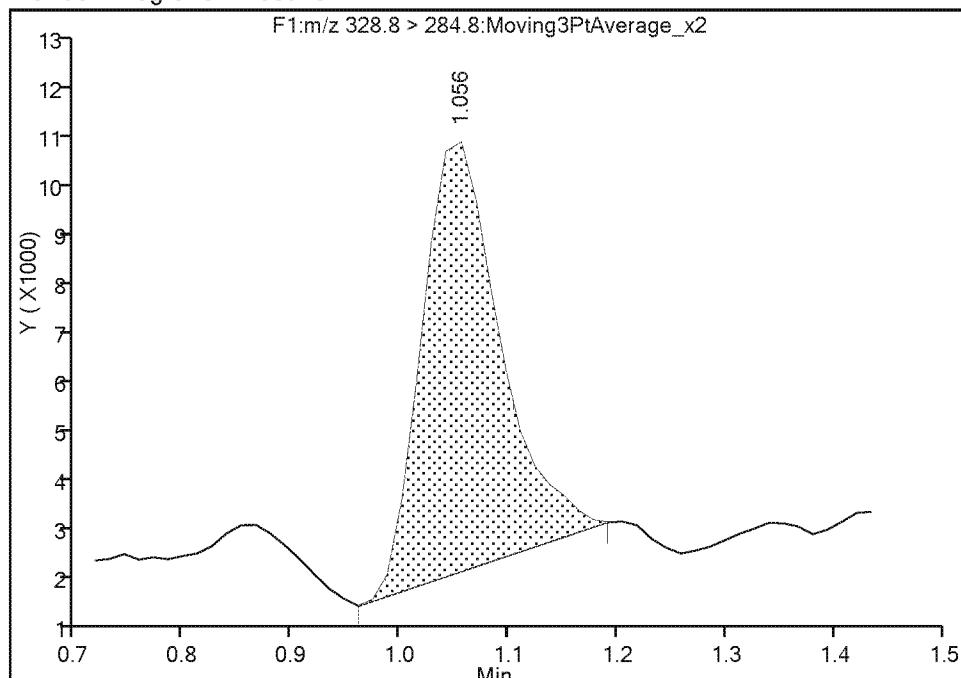
Processing Integration Results

RT: 1.06
 Area: 38092
 Amount: 0.452274
 Amount Units: ug/l



Manual Integration Results

RT: 1.06
 Area: 42730
 Amount: 0.494804
 Amount Units: ug/l



Reviewer: meyera, 08-Feb-2018 15:19:12

Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08036.d
 Lims ID: std003
 Client ID:
 Sample Type: IC Calib Level: 3
 Inject. Date: 08-Feb-2018 13:12:06 ALS Bottle#: 4 Worklist Smp#: 5
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: L3
 Misc. Info.: HFPO18B08
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 08-Feb-2018 15:24:14 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:19:19

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

* 2 13C3 HFPO-DA (IS)

331.8 > 286.8 1.042 1.045 -0.003 720099 10.0 956

\$ 3 13C3 HFPO-DA

331.8 > 286.8 1.042 1.045 -0.003 1.000 720099 9.65 956

1 Perfluoro(2-propoxypropanoic) acid

328.8 > 284.8 1.056 1.056 0.0 1.000 77455 0.9771 10.6

Reagents:

HFPO_CAL-3_00032 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180208-67079.b\\hfp0718B08036.d

Injection Date: 08-Feb-2018 13:12:06

Instrument ID: LC_LCMS7

Lims ID: std003

Client ID:

Operator ID: JBH

ALS Bottle#: 4 Worklist Smp#: 5

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

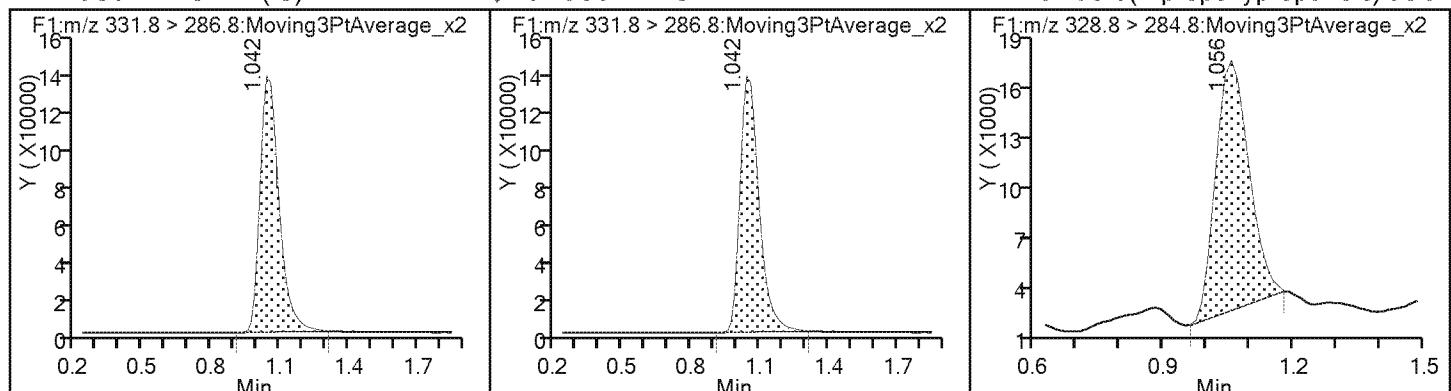
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

* 2 13C3 HFPO-DA (IS)

\$ 3 13C3 HFPO-DA

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08037.d
 Lims ID: std004
 Client ID:
 Sample Type: IC Calib Level: 4
 Inject. Date: 08-Feb-2018 13:15:21 ALS Bottle#: 5 Worklist Smp#: 6
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: L4
 Misc. Info.: HFPO18B08
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 08-Feb-2018 15:24:15 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:19:22

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 1.042 1.045 -0.003 1.000 769995 10.3 1154
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 1.042 1.045 -0.003 1.000 769995 10.0 1154
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 1.056 1.056 0.0 1.000 162117 1.95 26.1

Reagents:

HFPO_CAL-4_00032 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180208-67079.b\\hfpo718B08037.d

Injection Date: 08-Feb-2018 13:15:21

Instrument ID: LC_LCMS7

Lims ID: std004

Client ID:

Operator ID: JBH

ALS Bottle#: 5 Worklist Smp#: 6

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

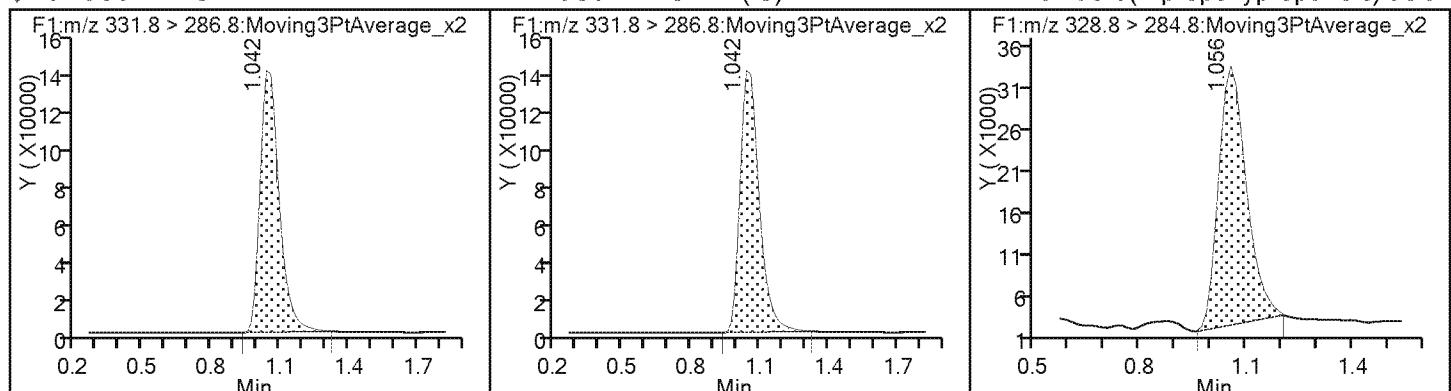
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08038.d
 Lims ID: std005
 Client ID:
 Sample Type: IC Calib Level: 5
 Inject. Date: 08-Feb-2018 13:18:35 ALS Bottle#: 6 Worklist Smp#: 7
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: L5
 Misc. Info.: HFPO18B08
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 08-Feb-2018 15:24:15 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d
 Column 1 : Det: F1:MRM
 Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:19:24

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

* 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 1.042 1.045 -0.003 752444 10.0 1072
 \$ 3 13C3 HFPO-DA
 331.8 > 286.8 1.042 1.045 -0.003 1.000 752444 10.1 1072
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 1.056 1.056 0.0 1.000 421775 5.24 66.0

Reagents:

HFPO_CAL-5_00080 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180208-67079.b\\hfpo718B08038.d

Injection Date: 08-Feb-2018 13:18:35

Instrument ID: LC_LCMS7

Lims ID: std005

Client ID:

Operator ID: JBH

ALS Bottle#: 6 Worklist Smp#: 7

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

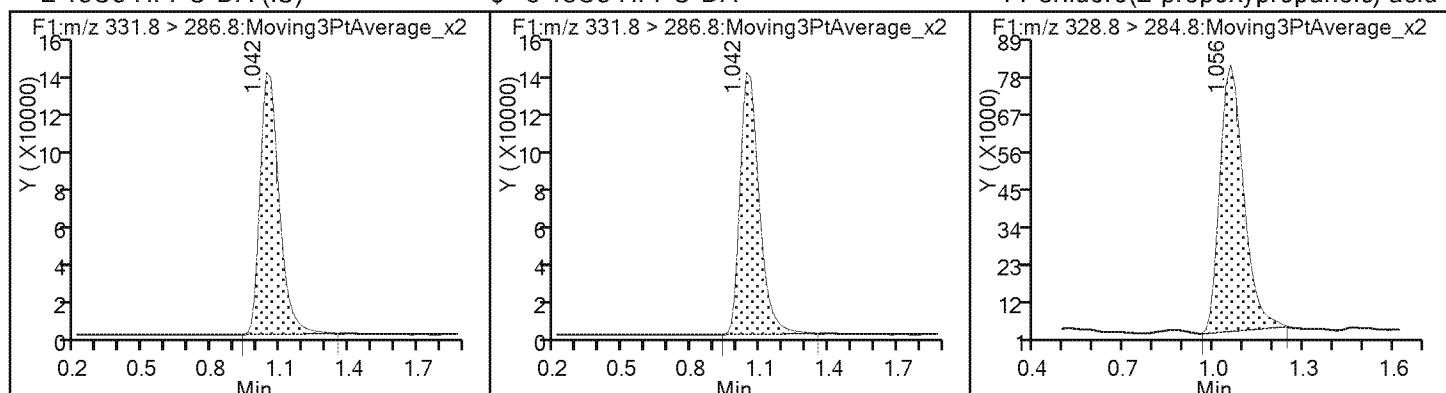
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

* 2 13C3 HFPO-DA (IS)

\$ 3 13C3 HFPO-DA

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08039.d
 Lims ID: std006
 Client ID:
 Sample Type: IC Calib Level: 6
 Inject. Date: 08-Feb-2018 13:21:49 ALS Bottle#: 7 Worklist Smp#: 8
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: L6
 Misc. Info.: HFPO18B08
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 08-Feb-2018 15:24:16 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:19:26

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA

331.8 > 286.8 1.042 1.045 -0.003 1.000 759397 10.2 1193

* 2 13C3 HFPO-DA (IS)

331.8 > 286.8 1.042 1.045 -0.003 759397 10.0 1193

1 Perfluoro(2-propoxypropanoic) acid

328.8 > 284.8 1.056 1.056 0.0 1.000 845082 10.4 146

Reagents:

HFPO_CAL-6_00080 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180208-67079.b\\hfpo718B08039.d

Injection Date: 08-Feb-2018 13:21:49

Instrument ID: LC_LCMS7

Lims ID: std006

Client ID:

Operator ID: JBH

ALS Bottle#: 7 Worklist Smp#: 8

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

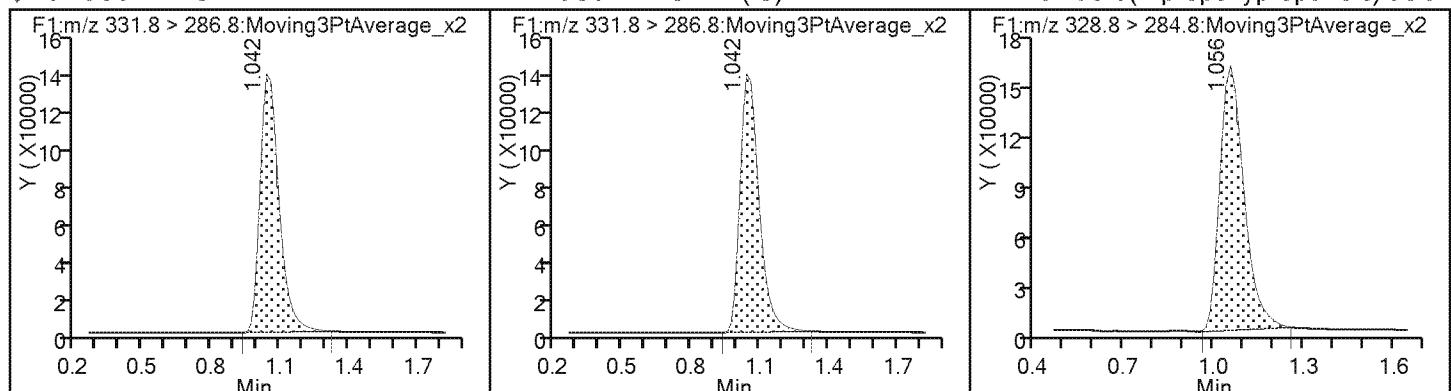
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08040.d
 Lims ID: std007
 Client ID:
 Sample Type: IC Calib Level: 7
 Inject. Date: 08-Feb-2018 13:25:03 ALS Bottle#: 8 Worklist Smp#: 9
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: L7
 Misc. Info.: HFPO18B08
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 08-Feb-2018 15:24:16 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
 Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:19:28

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

* 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 1.042 1.045 -0.003 750388 10.0 1247
 \$ 3 13C3 HFPO-DA
 331.8 > 286.8 1.042 1.045 -0.003 1.000 750388 10.1 1247
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 1.056 1.056 0.0 1.000 2046873 25.6 246

Reagents:

HFPO_CAL-7_00032 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180208-67079.b\\hfpo718B08040.d

Injection Date: 08-Feb-2018 13:25:03

Instrument ID: LC_LCMS7

Lims ID: std007

Client ID:

Operator ID: JBH

ALS Bottle#: 8 Worklist Smp#: 9

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

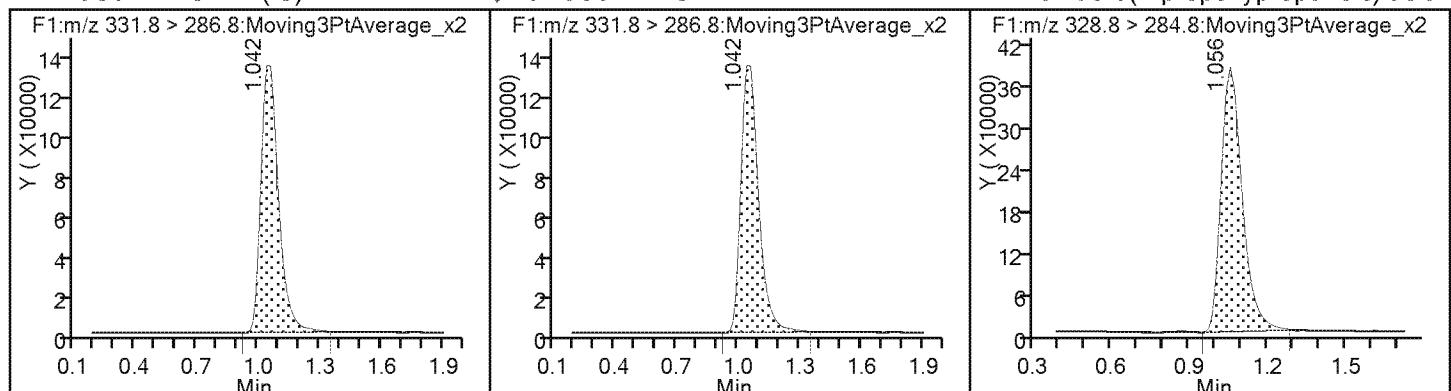
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

* 2 13C3 HFPO-DA (IS)

\$ 3 13C3 HFPO-DA

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08041.d
 Lims ID: std008
 Client ID:
 Sample Type: IC Calib Level: 8
 Inject. Date: 08-Feb-2018 13:28:18 ALS Bottle#: 9 Worklist Smp#: 10
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: L8
 Misc. Info.: HFPO18B08
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 08-Feb-2018 15:24:17 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:19:30

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 1.056 1.045 0.011 1.000 736869 9.87 1055
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 1.056 1.045 0.011 1.000 736869 10.0 1055
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 1.056 1.056 0.0 1.000 3929397 50.1 416

Reagents:

HFPO_CAL-8_00032 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180208-67079.b\\hfp0718B08041.d

Injection Date: 08-Feb-2018 13:28:18

Instrument ID: LC_LCMS7

Lims ID: std008

Client ID:

Operator ID: JBH

ALS Bottle#: 9 Worklist Smp#: 10

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

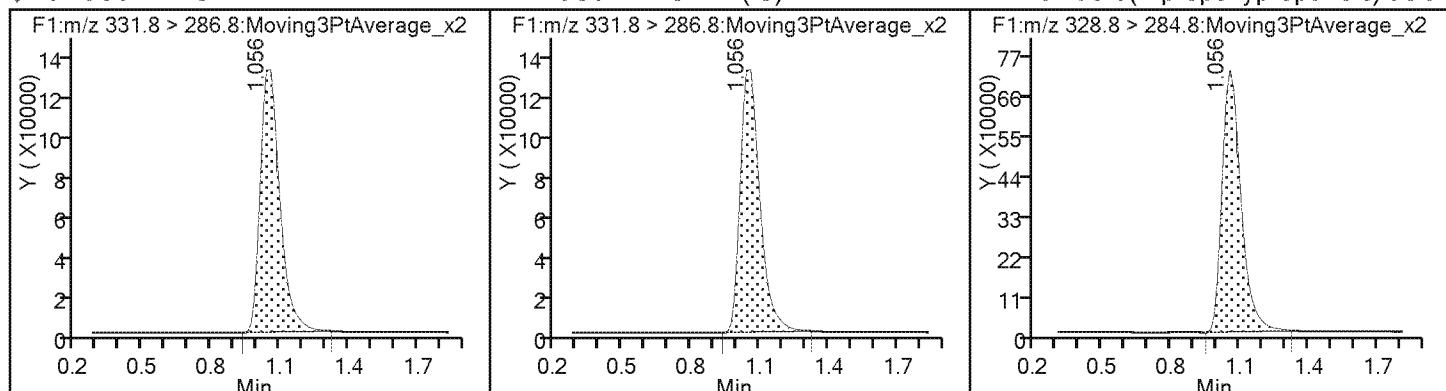
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d
 Lims ID: std009
 Client ID:
 Sample Type: IC Calib Level: 9
 Inject. Date: 08-Feb-2018 13:31:32 ALS Bottle#: 10 Worklist Smp#: 11
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: L9
 Misc. Info.: HFPO18B08
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 08-Feb-2018 15:24:17 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
 Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:19:38

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

* 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 1.056 1.045 0.011 712841 10.0 1141
 \$ 3 13C3 HFPO-DA
 331.8 > 286.8 1.056 1.045 0.011 1.000 712841 9.55 1141
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 1.056 1.056 0.0 1.000 7489478 98.7 561

Reagents:

HFPO_CAL-9_00001 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180208-67079.b\\hfp0718B08042.d

Injection Date: 08-Feb-2018 13:31:32

Instrument ID: LC_LCMS7

Lims ID: std009

Client ID:

Operator ID: JBH

ALS Bottle#: 10 Worklist Smp#: 11

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

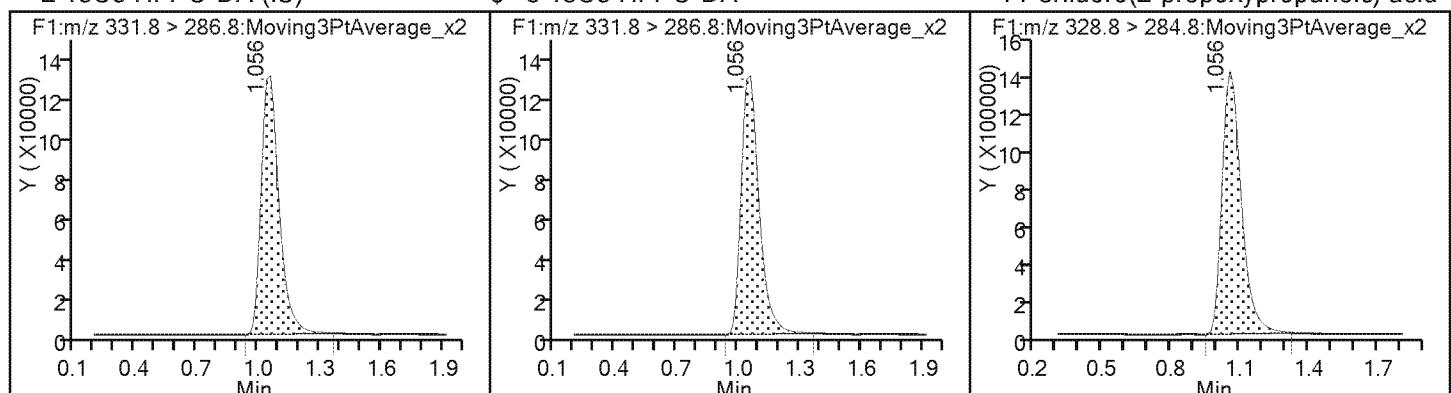
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

* 2 13C3 HFPO-DA (IS)

\$ 3 13C3 HFPO-DA

1 Perfluoro(2-propoxypropanoic) acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver

Job No.: 280-107405-1

SDG No.:

Lab Sample ID: ICV 280-390728/13

Calibration Date: 10/10/2017 10:07

Instrument ID: LC_LCMS7

Calib Start Date: 10/10/2017 09:35

GC Column: Synergi Hydro ID:

Calib End Date: 10/10/2017 09:58

Lab File ID: hfpo717J10036.d

Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluoro(2-propoxypropanoic acid	Lin1		1.154		2.07	2.00	3.3	20.0
13C3 HFPO-DA	Ave	73145	72923		9.97	10.0	-0.3	

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10036.d
 Lims ID: ICV
 Client ID:
 Sample Type: ICV
 Inject. Date: 10-Oct-2017 10:07:48 ALS Bottle#: 10 Worklist Smp#: 13
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: ICV
 Misc. Info.: HFPO17J10
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist:
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 10-Oct-2017 12:51:53 Calib Date: 10-Oct-2017 09:58:07
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20171010-63483.b\hfpo717J10033.d

Column 1 : Det: F1:MRM

Process Host: XAWRK005

First Level Reviewer: meyera Date: 10-Oct-2017 11:51:34

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 0.880 0.880 0.0 1.000 729225 9.97 396
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 0.880 0.880 0.0 1.000 729225 10.0 396
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 0.893 0.885 0.008 1.000 168368 2.07 111

Reagents:

HFPO_ICV_00032 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20171010-63483.b\\hfpo717J10036.d

Injection Date: 10-Oct-2017 10:07:48 Instrument ID: LC_LCMS7

Lims ID: ICV

Client ID:

Operator ID: JBH ALS Bottle#: 10 Worklist Smp#: 13

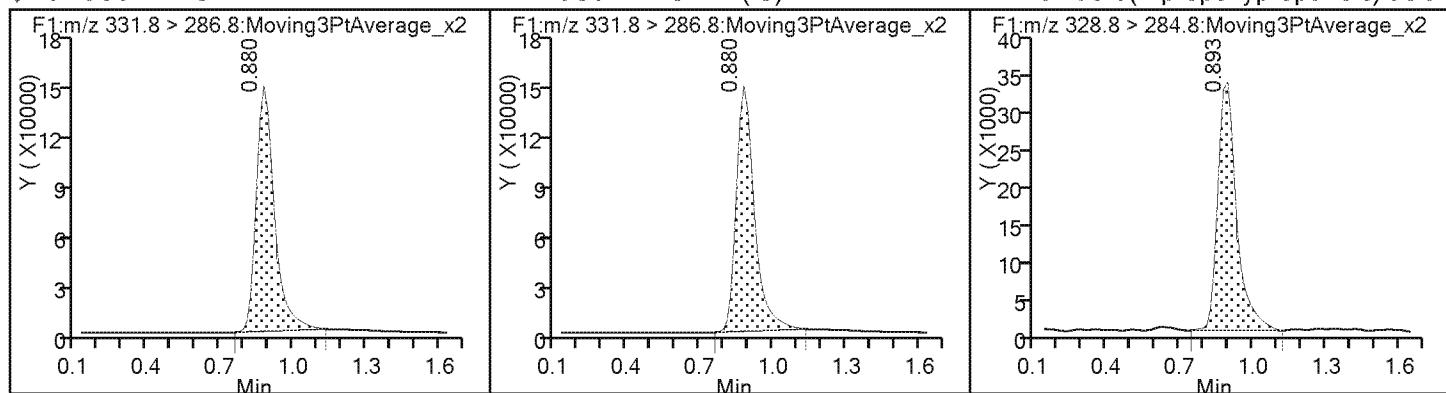
Injection Vol: 20.0 ul Dil. Factor: 1.0000

Method: HFPO Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver

Job No.: 280-107405-1

SDG No.:

Lab Sample ID: ICV 280-404345/14

Calibration Date: 02/08/2018 13:41

Instrument ID: LC_LCMS7

Calib Start Date: 02/08/2018 13:05

GC Column: Synergi Hydro ID:

Calib End Date: 02/08/2018 13:31

Lab File ID: hfpo718B08045.d

Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
HFPO-DA	Lin1		1.139		2.05	1.95	5.3	20.0
13C3 HFPO-DA	Ave	74660	76733		10.3	10.0	2.8	

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08045.d
 Lims ID: ICV
 Client ID:
 Sample Type: ICV
 Inject. Date: 08-Feb-2018 13:41:16 ALS Bottle#: 11 Worklist Smp#: 14
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: ICV
 Misc. Info.: HFPO18B08
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist:
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 08-Feb-2018 15:24:19 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:20:35

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 1.056 1.045 0.011 1.000 767333 10.3 1367
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 1.056 1.045 0.011 1.000 767333 10.0 1367
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 1.056 1.056 0.0 1.000 170411 2.05 30.8

Reagents:

HFPO_ICV_00034 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180208-67079.b\\hfp0718B08045.d

Injection Date: 08-Feb-2018 13:41:16

Instrument ID: LC_LCMS7

Lims ID: ICV

Client ID:

Operator ID: JBH

ALS Bottle#: 11 Worklist Smp#: 14

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

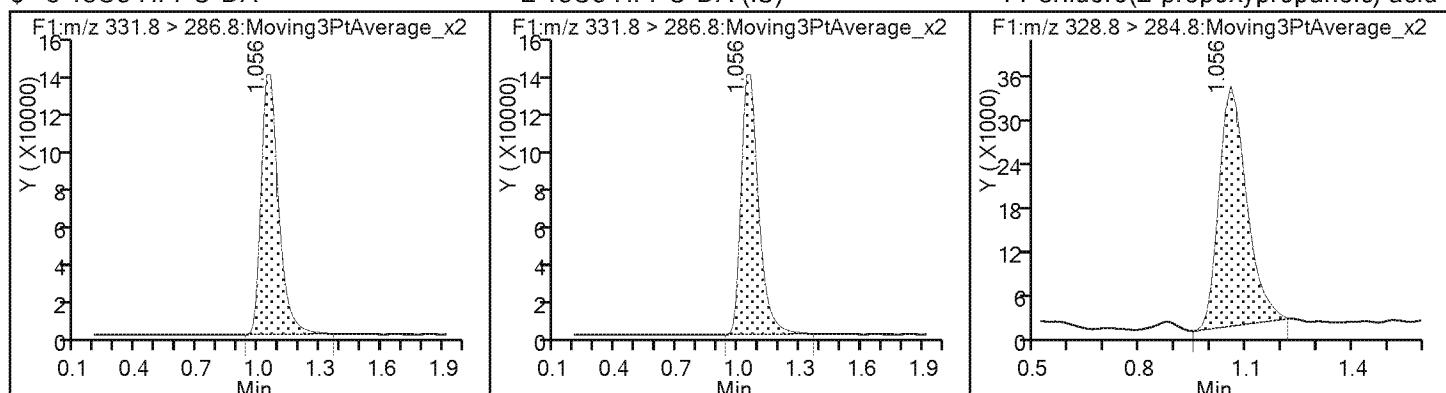
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver

Job No.: 280-107405-1

SDG No.:

Lab Sample ID: CCV 280-409067/10

Calibration Date: 03/26/2018 10:14

Instrument ID: LC_LCMS7

Calib Start Date: 02/08/2018 13:05

GC Column: Synergi Hydro ID:

Calib End Date: 02/08/2018 13:31

Lab File ID: hfpo718C23010.d

Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
HFPO-DA	Lin1		1.057		4.94	5.00	-1.3	20.0
13C3 HFPO-DA	Ave	74660	39805		5.33	10.0	-46.7	

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180326-68335.b\hfpo718C23010.d
 Lims ID: CCV L5
 Client ID:
 Sample Type: CCV
 Inject. Date: 26-Mar-2018 10:14:57 ALS Bottle#: 3 Worklist Smp#: 10
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L5
 Misc. Info.: HFPO18C26
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180326-68335.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 26-Mar-2018 14:06:29 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICAL File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK007

First Level Reviewer: meyera Date: 26-Mar-2018 13:55:17

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
331.8 > 286.8 1.110 1.045 0.065 1.000 398047 5.33 4010

* 2 13C3 HFPO-DA (IS)
331.8 > 286.8 1.110 1.045 0.065 1.000 398047 10.0 4010

1 Perfluoro(2-propoxypropanoic) acid
328.8 > 284.8 1.110 1.056 0.054 1.000 210428 4.94 275

Reagents:

HFPO_CAL-5_00084 Amount Added: 1.00 Units: mL

Report Date: 26-Mar-2018 14:06:30

Chrom Revision: 2.2 13-Mar-2018 08:45:20

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180326-68335.b\\hfpo718C23010.d

Injection Date: 26-Mar-2018 10:14:57 Instrument ID: LC_LCMS7

Lims ID: CCV L5

Client ID:

Operator ID: JBH

ALS Bottle#: 3 Worklist Smp#: 10

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

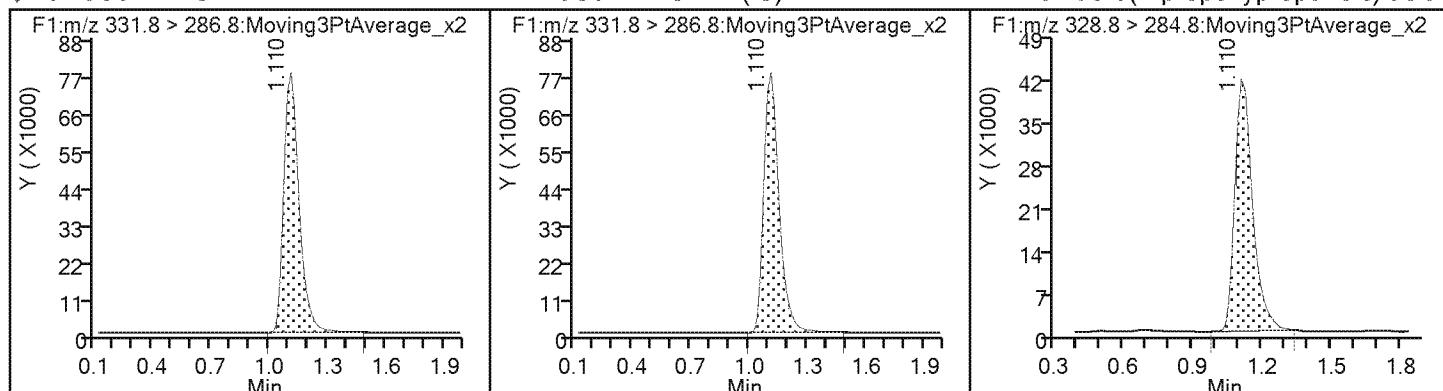
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver

Job No.: 280-107405-1

SDG No.:

Lab Sample ID: CCV 280-409067/19

Calibration Date: 03/26/2018 10:44

Instrument ID: LC_LCMS7

Calib Start Date: 02/08/2018 13:05

GC Column: Synergi Hydro ID:

Calib End Date: 02/08/2018 13:31

Lab File ID: hfpo718C23019.d

Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
HFPO-DA	Lin1		1.018		9.53	10.0	-4.7	20.0
13C3 HFPO-DA	Ave	74660	61964		8.30	10.0	-17.0	

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180326-68335.b\hfpo718C23019.d
 Lims ID: CCV L6
 Client ID:
 Sample Type: CCV
 Inject. Date: 26-Mar-2018 10:44:11 ALS Bottle#: 4 Worklist Smp#: 19
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L6
 Misc. Info.: HFPO18C26
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180326-68335.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 26-Mar-2018 14:06:43 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICAL File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK007

First Level Reviewer: meyera Date: 26-Mar-2018 13:55:48

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 1.002 1.045 -0.043 1.000 619637 8.30 2158
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 1.002 1.045 -0.043 619637 10.0 2158
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 1.015 1.056 -0.041 1.000 630730 9.53 173

Reagents:

HFPO_CAL-6_00084 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180326-68335.b\\hfp0718C23019.d

Injection Date: 26-Mar-2018 10:44:11

Instrument ID: LC_LCMS7

Lims ID: CCV L6

Client ID:

Operator ID: JBH

ALS Bottle#: 4 Worklist Smp#: 19

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

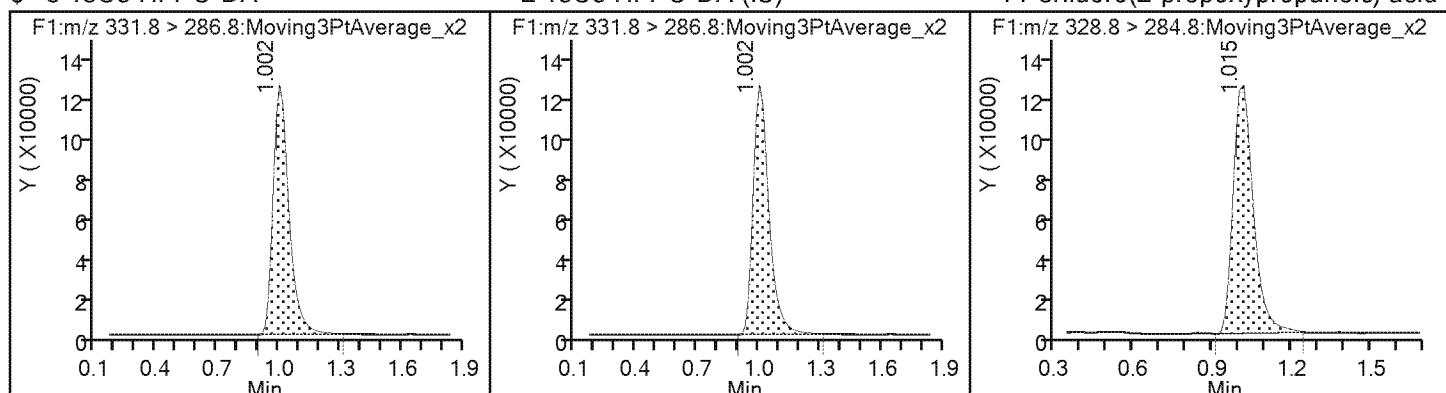
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver

Job No.: 280-107405-1

SDG No.:

Lab Sample ID: CCV 280-409067/29

Calibration Date: 03/26/2018 11:16

Instrument ID: LC_LCMS7

Calib Start Date: 02/08/2018 13:05

GC Column: Synergi Hydro ID:

Calib End Date: 02/08/2018 13:31

Lab File ID: hfpo718C23029.d

Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
HFPO-DA	Lin1		1.013		4.73	5.00	-5.4	20.0
13C3 HFPO-DA	Ave	74660	64716		8.67	10.0	-13.3	

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180326-68335.b\hfpo718C23029.d
 Lims ID: CCV L5
 Client ID:
 Sample Type: CCV
 Inject. Date: 26-Mar-2018 11:16:42 ALS Bottle#: 3 Worklist Smp#: 29
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L5
 Misc. Info.: HFPO18C26
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180326-68335.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 26-Mar-2018 14:06:54 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICAL File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK007

First Level Reviewer: meyera Date: 26-Mar-2018 13:56:10

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 1.029 1.045 -0.016 1.000 647157 8.67 1766
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 1.029 1.045 -0.016 1.000 647157 10.0 1766
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 1.029 1.056 -0.027 1.000 327874 4.73 54.1

Reagents:

HFPO_CAL-5_00084 Amount Added: 1.00 Units: mL

Report Date: 26-Mar-2018 14:06:55

Chrom Revision: 2.2 13-Mar-2018 08:45:20

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180326-68335.b\\hfp0718C23029.d

Injection Date: 26-Mar-2018 11:16:42 Instrument ID: LC_LCMS7

Lims ID: CCV L5

Client ID:

Operator ID: JBH

ALS Bottle#: 3 Worklist Smp#: 29

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

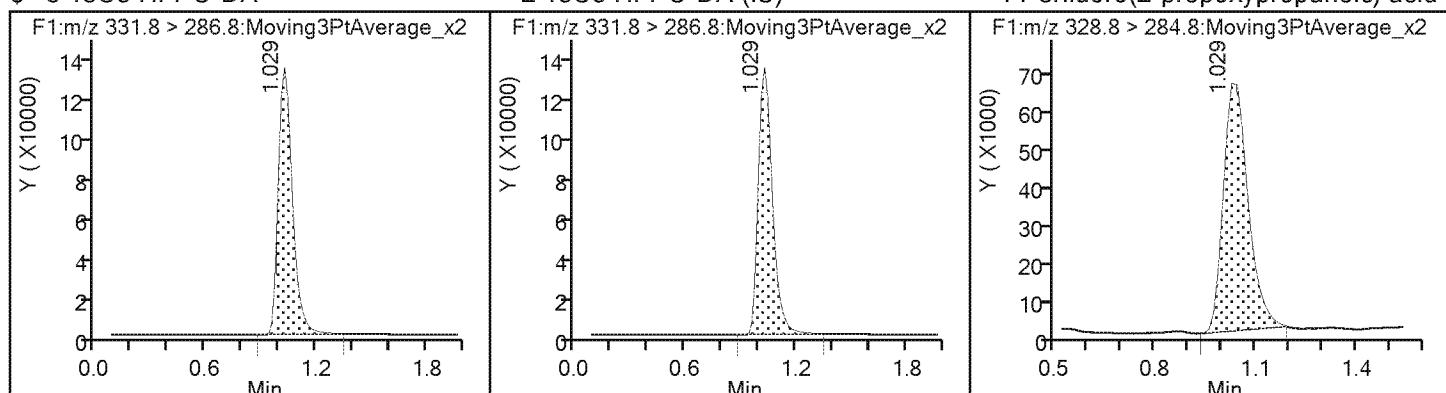
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

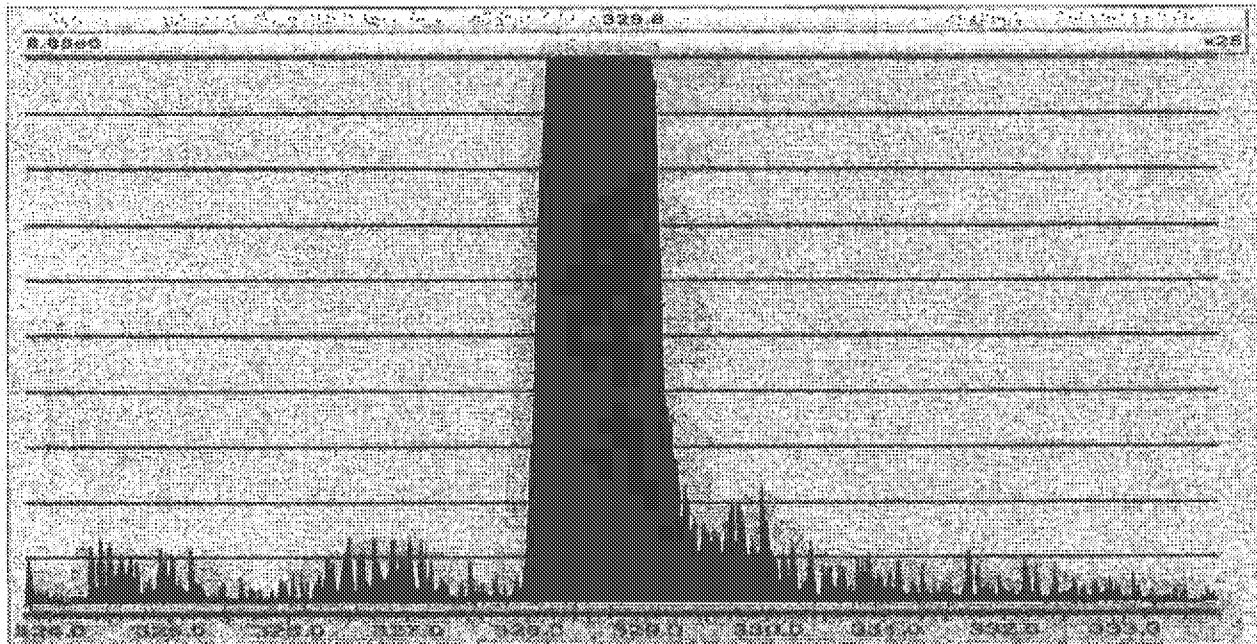
1 Perfluoro(2-propoxypropanoic) acid



File: C:\MassLynx\8321.PROVACQUDBHFPOMRM.ipr

Instrument: XEVO-TQMSMVBA463

Printed: Monday, March 26, 2018 08:56:51 Mountain Daylight Time



Type	Start Mass	End Mass	Set Mass
MS1 Scan	323.00	333.00	
Source (ES-)	Settings	Readbacks	
Capillary (kV)	0.50	0.52	
Cone (V)	10.00	-21.06	
Extractor (V)	3.00	-10.61	
Source Temperature (°C)	120	98	
Desolvation Temperature (°C)	200	197	
Cone Gas Flow (L/Hr)	50	60	
Desolvation Gas Flow (L/Hr)	800	700	
Collision Gas Flow (mL/Min)	0.15	0.04	
Analyser	Settings	Readbacks	
LM 1 Resolution	2.8		
HM 1 Resolution	14.0		
Ion Energy 1	0.7		
MS Mode Collision Energy	7.00		
MSMS Mode Collision Energy	20.00		
MS Mode Entrance	0.50		
MS Mode Exit	0.50		
Gas On MS Mode Entrance	0.50		
Gas On MS Mode Exit	0.50		
Gas On MSMS Mode Entrance	0.50		
Gas On MSMS Mode Exit	0.50		
Gas Off MS Mode Entrance	30.00		
Gas Off MS Mode Exit	30.00		
Gas Off MSMS Mode Entrance	2.00		
Gas Off MSMS Mode Exit	2.00		
ScanWave M8 Mode Entrance	0.50		
ScanWave M8 Mode Exit	0.50		
ScanWave MSMS Mode Entrance	0.50		
ScanWave MSMS Mode Exit	0.50		
LM 2 Resolution	2.9		
HM 2 Resolution	14.7		
Ion Energy 2	0.3		

File: C:\MassLynx\8321.PROVACQUDBVHFPMRM.lpr

Instrument: XEVO-TQMS\VBAA53

Printed: Monday, March 28, 2016 08:55:51 Mountain Daylight Time

Multiplier 523.81
Active Reservoir A

Pressure Gauges
Collision Cell Pressure (mbar) 7.878762e-008

Instrument Configuration**Automatic Mode**

MS Inter-scan delay (secs) 0.005
Polarity/Mode switch inter-scan delay (secs) 0.020
Enhanced Inter-scan delay (secs) 0.020

Inter-channel delay - See Tables

MS 1 Delay Table:

R delay
<= 0.500 0.005
<= 2.000 0.008
<= 4.000 0.010
<= 11.000 0.012
> 11.000 0.014
MS 2 Delay Table:
R delay
<= 8.000 0.005
<= 25.000 0.005
> 25.000 0.007

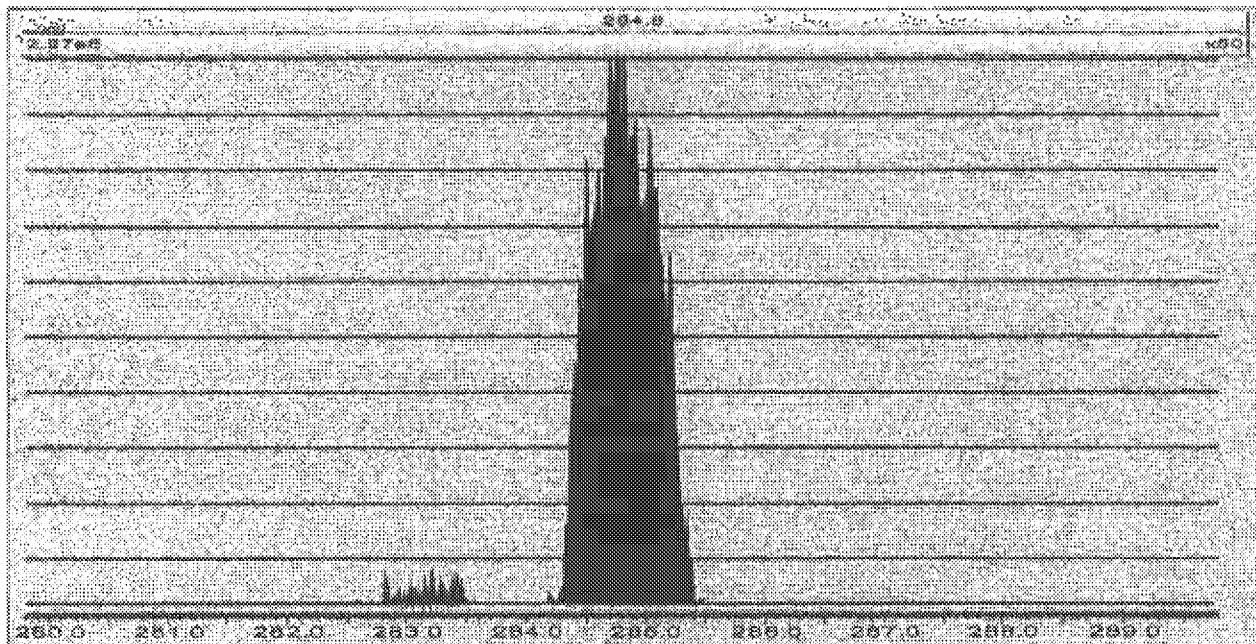
3/27/18

3/27/18

File: C:\MassLynx\8321.PRO\ACQUDBHFPOMRM.lpr

Instrument: XEVO-TQMS\IVBA463

Printed: Monday, March 28, 2016 08:58:51 Mountain Daylight Time



Type	Start Mass	End Mass	Set Mass
Daughter Scan	279.80	289.80	328.80

Source (ES-)	Settings	Readbacks
--------------	----------	-----------

Capillary (kV)	0.50	0.53
----------------	------	------

Cone (V)	10.00	-21.08
----------	-------	--------

Extractor (V)	3.00	-10.61
---------------	------	--------

Source Temperature (°C)	120	103
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Desolvation Temperature (°C)	200	200
------------------------------	-----	-----

Cone Gas Flow (L/Hr)	50	50
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Desolvation Gas Flow (L/Hr)	800	781
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Collision Gas Flow (mL/Min)	0.16	0.14
-----------------------------	------	------

Analyser	Settings	Readbacks
----------	----------	-----------

LM 1 Resolution	2.8	
-----------------	-----	--

HM 1 Resolution	14.8	
-----------------	------	--

Ion Energy 1	0.7	0.7
--------------	-----	-----

MS Mode Collision Energy	7.00	7.00
--------------------------	------	------

MSMS Mode Collision Energy	20.00	20.00
----------------------------	-------	-------

MS Mode Entrance	0.50	0.50
------------------	------	------

MS Mode Exit	0.50	0.50
--------------	------	------

Gas On MS Mode Entrance	0.50	0.50
-------------------------	------	------

Gas On MS Mode Exit	0.50	0.50
---------------------	------	------

Gas On MSMS Mode Entrance	0.50	0.50
---------------------------	------	------

Gas On MSMS Mode Exit	0.50	0.50
-----------------------	------	------

Gas Off MS Mode Entrance	30.00	30.00
--------------------------	-------	-------

Gas Off MS Mode Exit	30.00	30.00
----------------------	-------	-------

Gas Off MSMS Mode Entrance	2.00	2.00
----------------------------	------	------

Gas Off MSMS Mode Exit	2.00	2.00
------------------------	------	------

ScanWave MS Mode Entrance	0.50	0.50
---------------------------	------	------

ScanWave MS Mode Exit	0.50	0.50
-----------------------	------	------

ScanWave MSMS Mode Entrance	0.50	0.50
-----------------------------	------	------

ScanWave MSMS Mode Exit	0.50	0.50
-------------------------	------	------

LM 2 Resolution	2.9	2.9
-----------------	-----	-----

HM 2 Resolution	14.7	14.7
-----------------	------	------

Ion Energy 2	0.3	0.3
--------------	-----	-----

File: C:\MassLynx\8321.PROVACQUDBHFPOMRM.lpr

Instrument: XEVO-TQMS\WBA463

Printed: Monday, March 26, 2018 08:50:51 Mountain Daylight Time

Multplier : 623.81
Active Reservoir : A

Pressure Gauges
Collision Cell Pressure (mbar) : 1.243098e-003

Instrument Configuration**Automatic Mode**

MS Inter-scan delay (secs) : 0.005
Polarity/Mode switch Inter-scan delay (secs) : 0.020
Enhanced Inter-scan delay (secs) : 0.020

Inter-channel delay - See Tables**MS 1 Delay Table:**

R	delay	Ch1/Ch2
<= 0.500	0.005	0.000
<= 2.000	0.008	0.000
<= 4.000	0.010	0.000
<= 11.000	0.012	0.000
> 11.000	0.014	0.000

MS 2 Delay Table:

R	delay	Ch1/Ch2
<= 8.000	0.005	0.000
<= 25.000	0.006	0.000
> 25.000	0.007	0.000

File: c:\masslynx\8321.pro\acquidb\hfpo.exp

Printed: Monday, March 26, 2018 14:29:29 Mountain Daylight Time

Creation Time	Fri 16 Nov 2018 09:08:40
Instrument Identifier	XEVO-TQMS\IVBA453
Version Number	1.0
Duration (min)	2.0
Calibration Filename	C:\MassLynx\IntelliStar\Results\Unit Mass Resolution\Calibration_20100811
.2.cal	
Solvent Delay Divert Valve Enabled	0
Number Of Functions	1

Function 1 : MRM of 2 mass pairs, Time 0.00 to 2.00, ES-

Type	MRM						
Ion Mode	ES-						
Inter Channel Delay (sec)	-1.000						
InterScan Time (sec)	-1.000						
Span (Da)	0.5						
Start Time (min)	0.0						
End Time (min)	2.0						
Ch	Pmt(Da)	Dau(Da)	Dwell(s)	Conc(V)	Coll(eV)	Delay(s)	Compound
1	328.80	284.80	0.400	10.00	7.00	-1.000	HFPO
2	331.80	286.80	0.400	10.00	7.00	-1.000	HFPO IS

Chuclayom

3/27/18.

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 280-107405-1
SDG No.:
Client Sample ID: Lab Sample ID: MB 280-408382/1-A
Matrix: Water Lab File ID: hfpo718C23011.d
Analysis Method: 8321A Date Collected:
Extraction Method: 3535 Date Extracted: 03/19/2018 20:12
Sample wt/vol: 250 (mL) Date Analyzed: 03/26/2018 10:18
Con. Extract Vol.: 5 (mL) Dilution Factor: 1
Injection Volume: 20 (uL) GC Column: Synergi Hydro ID:
% Moisture: GPC Cleanup: (Y/N) N
Analysis Batch No.: 409067 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
13252-13-6	HFPO-DA	<0.010		0.010	

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL02255	13C3 HFPO-DA	90		50-200

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180326-68335.b\hfpo718C23011.d
 Lims ID: MB 280-408382/1-A
 Client ID:
 Sample Type: MB
 Inject. Date: 26-Mar-2018 10:18:11 ALS Bottle#: 11 Worklist Smp#: 11
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: MB280-408382/1-A
 Misc. Info.: HFPO18C26
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180326-68335.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 26-Mar-2018 14:06:29 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK007

First Level Reviewer: meyera Date: 26-Mar-2018 13:55:30

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 1.015 1.045 -0.030 1.000 670244 8.98 3088
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 1.015 1.045 -0.030 670244 10.0 3088

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180326-68335.b\\hfp0718C23011.d

Injection Date: 26-Mar-2018 10:18:11 Instrument ID: LC_LCMS7

Lims ID: MB 280-408382/1-A

Client ID:

Operator ID: JBH

ALS Bottle#: 11 Worklist Smp#: 11

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

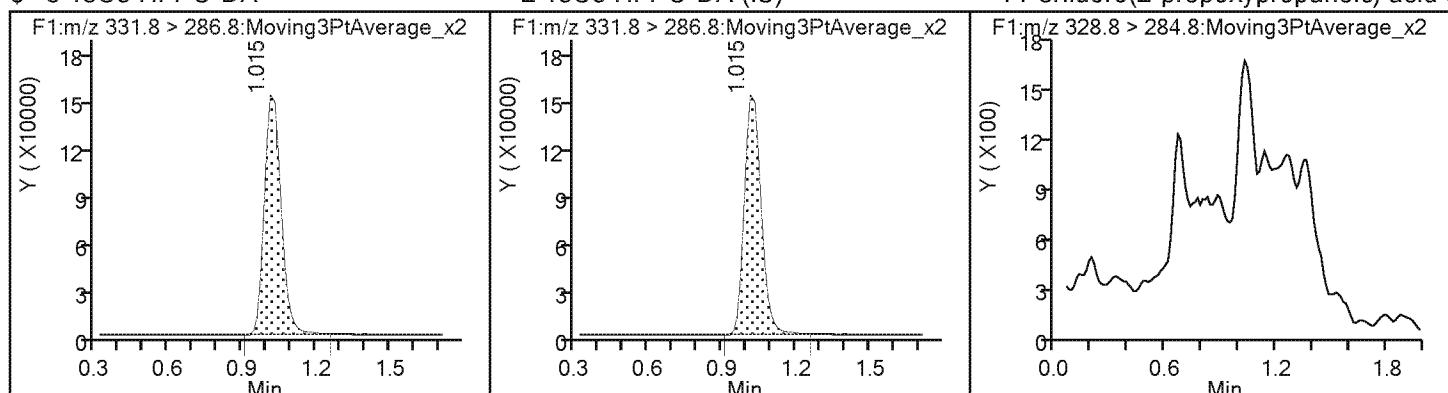
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid (ND)



TestAmerica Denver
Recovery Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180326-68335.b\hfpo718C23011.d
 Lims ID: MB 280-408382/1-A
 Client ID:
 Sample Type: MB
 Inject. Date: 26-Mar-2018 10:18:11 ALS Bottle#: 11 Worklist Smp#: 11
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: MB280-408382/1-A
 Misc. Info.: HFPO18C26
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180326-68335.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 26-Mar-2018 14:06:29 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
 Process Host: XAWRK007

First Level Reviewer: meyera Date: 26-Mar-2018 13:55:30

Compound	Amount Added	Amount Recovered	% Rec.
\$ 3 13C3 HFPO-DA	10.0	8.98	89.77

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 280-107405-1

SDG No.: _____

Client Sample ID: _____ Lab Sample ID: ICB 280-404345/12

Matrix: Water Lab File ID: hfpo718B08043.d

Analysis Method: 8321A Date Collected: _____

Extraction Method: _____ Date Extracted: _____

Sample wt/vol: 1 (mL) Date Analyzed: 02/08/2018 13:34

Con. Extract Vol.: _____ Dilution Factor: 1

Injection Volume: 20 (uL) GC Column: Synergi Hydro ID: _____

% Moisture: _____ GPC Cleanup: (Y/N) N

Analysis Batch No.: 404345 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
13252-13-6	HFPO-DA	<0.50		0.50	

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL02255	13C3 HFPO-DA	103		50-200

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08043.d
 Lims ID: ICB
 Client ID:
 Sample Type: ICB
 Inject. Date: 08-Feb-2018 13:34:46 ALS Bottle#: 1 Worklist Smp#: 12
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: ICB
 Misc. Info.: HFPO18B08
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 08-Feb-2018 15:24:17 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:19:42

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
331.8 > 286.8 1.056 1.045 0.011 1.000 772269 10.3 1251

* 2 13C3 HFPO-DA (IS)
331.8 > 286.8 1.056 1.045 0.011 1.000 772269 10.0 1251

Reagents:

HFPO_CAL-0_00032 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180208-67079.b\\hfpo718B08043.d

Injection Date: 08-Feb-2018 13:34:46

Instrument ID: LC_LCMS7

Lims ID: ICB

Client ID:

Operator ID: JBH

ALS Bottle#: 1 Worklist Smp#: 12

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

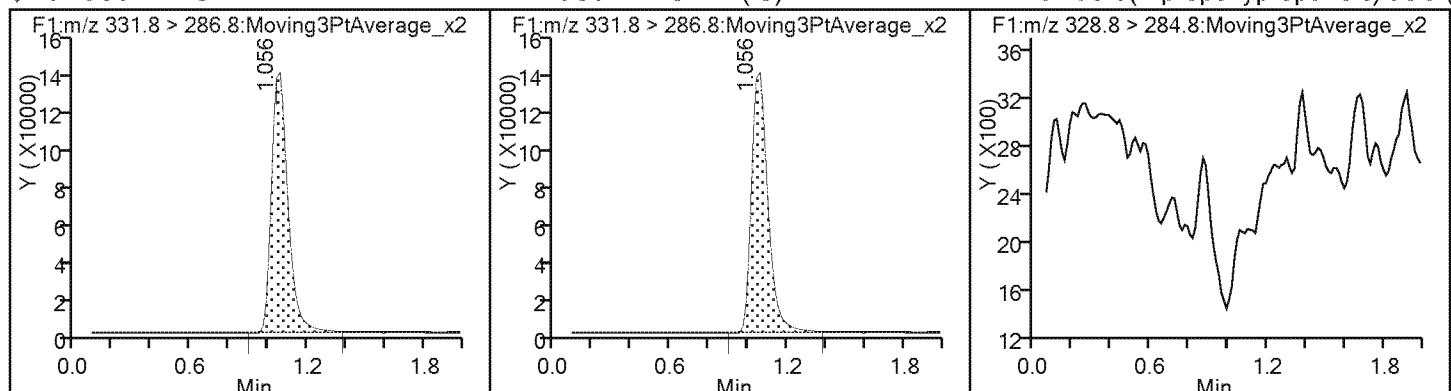
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid (ND)



TestAmerica Denver
Recovery Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08043.d
 Lims ID: ICB
 Client ID:
 Sample Type: ICB
 Inject. Date: 08-Feb-2018 13:34:46 ALS Bottle#: 1 Worklist Smp#: 12
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: ICB
 Misc. Info.: HFPO18B08
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 08-Feb-2018 15:24:17 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:19:42

Compound	Amount Added	Amount Recovered	% Rec.
\$ 3 13C3 HFPO-DA	10.0	10.3	103.44

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 280-107405-1

SDG No.: _____

Client Sample ID: _____ Lab Sample ID: LCS 280-408382/2-A

Matrix: Water Lab File ID: hfpo718C23012.d

Analysis Method: 8321A Date Collected: _____

Extraction Method: 3535 Date Extracted: 03/19/2018 20:12

Sample wt/vol: 250 (mL) Date Analyzed: 03/26/2018 10:21

Con. Extract Vol.: 5 (mL) Dilution Factor: 1

Injection Volume: 20 (uL) GC Column: Synergi Hydro ID: _____

% Moisture: GPC Cleanup: (Y/N) N

Analysis Batch No.: 409067 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
13252-13-6	HFPO-DA	0.187		0.010	

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL02255	13C3 HFPO-DA	92		50-200

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180326-68335.b\hfpo718C23012.d
 Lims ID: LCS 280-408382/2-A
 Client ID:
 Sample Type: LCS
 Inject. Date: 26-Mar-2018 10:21:26 ALS Bottle#: 12 Worklist Smp#: 12
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: LCS280-408382/2-A
 Misc. Info.: HFPO18C26
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180326-68335.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 26-Mar-2018 14:06:29 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK007

First Level Reviewer: meyera Date: 26-Mar-2018 13:55:32

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 0.975 1.045 -0.070 1.000 683481 9.15 2884
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 0.975 1.045 -0.070 683481 10.0 2884
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 0.975 1.056 -0.081 1.000 682647 9.35 329

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180326-68335.b\\hfp0718C23012.d

Injection Date: 26-Mar-2018 10:21:26 Instrument ID: LC_LCMS7

Lims ID: LCS 280-408382/2-A

Client ID:

Operator ID: JBH

ALS Bottle#: 12 Worklist Smp#: 12

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

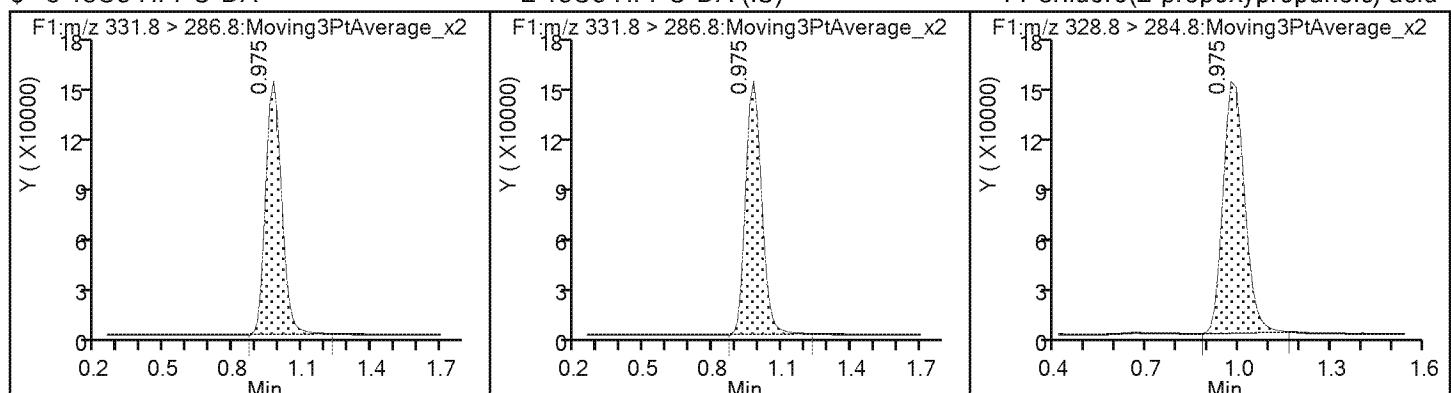
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Recovery Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180326-68335.b\hfpo718C23012.d
 Lims ID: LCS 280-408382/2-A
 Client ID:
 Sample Type: LCS
 Inject. Date: 26-Mar-2018 10:21:26 ALS Bottle#: 12 Worklist Smp#: 12
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: LCS280-408382/2-A
 Misc. Info.: HFPO18C26
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180326-68335.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 26-Mar-2018 14:06:29 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
 Process Host: XAWRK007

First Level Reviewer: meyera Date: 26-Mar-2018 13:55:32

Compound	Amount Added	Amount Recovered	% Rec.
\$ 3 13C3 HFPO-DA	10.0	9.15	91.55

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 280-107405-1

SDG No.: _____

Client Sample ID: _____ Lab Sample ID: LCSD 280-408382/3-A

Matrix: Water Lab File ID: hfpo718C23013.d

Analysis Method: 8321A Date Collected: _____

Extraction Method: 3535 Date Extracted: 03/19/2018 20:12

Sample wt/vol: 250 (mL) Date Analyzed: 03/26/2018 10:24

Con. Extract Vol.: 5 (mL) Dilution Factor: 1

Injection Volume: 20 (uL) GC Column: Synergi Hydro ID: _____

% Moisture: GPC Cleanup: (Y/N) N

Analysis Batch No.: 409067 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
13252-13-6	HFPO-DA	0.179		0.010	

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL02255	13C3 HFPO-DA	93		50-200

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180326-68335.b\hfpo718C23013.d
 Lims ID: LCSD 280-408382/3-A
 Client ID:
 Sample Type: LCSD
 Inject. Date: 26-Mar-2018 10:24:41 ALS Bottle#: 13 Worklist Smp#: 13
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: LCSD280-408382/3-A
 Misc. Info.: HFPO18C26
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180326-68335.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 26-Mar-2018 14:06:29 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK007

First Level Reviewer: meyera Date: 26-Mar-2018 13:55:35

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 0.947 1.045 -0.098 1.000 691163 9.26 2729
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 0.947 1.045 -0.098 1.000 691163 10.0 2729
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 0.961 1.056 -0.095 1.000 661073 8.96 213

Report Date: 26-Mar-2018 14:06:35

Chrom Revision: 2.2 13-Mar-2018 08:45:20

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180326-68335.b\\hfpo718C23013.d

Injection Date: 26-Mar-2018 10:24:41 Instrument ID: LC_LCMS7

Lims ID: LCSD 280-408382/3-A

Client ID:

Operator ID: JBH

ALS Bottle#: 13 Worklist Smp#: 13

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

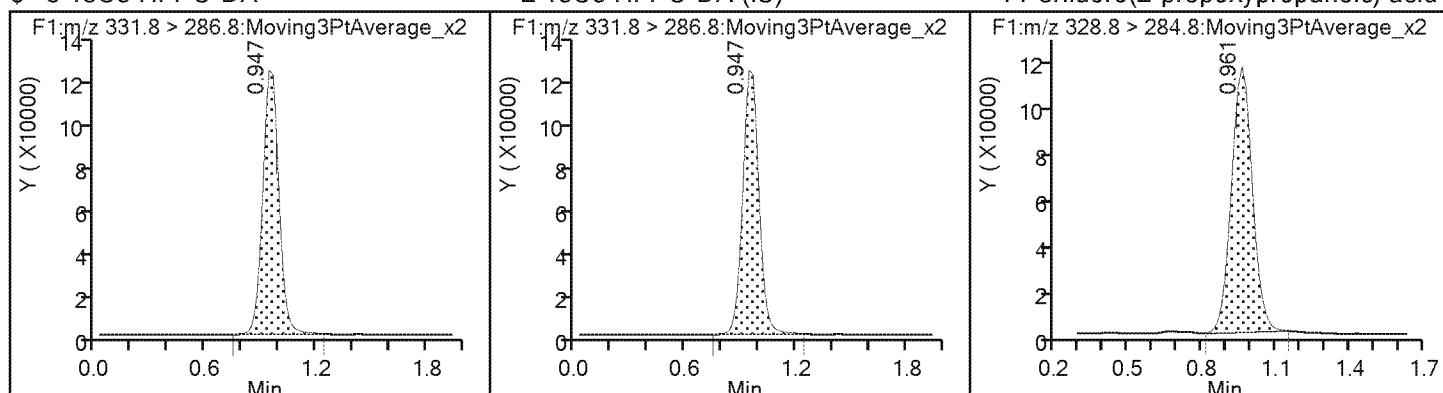
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Recovery Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180326-68335.b\hfpo718C23013.d
 Lims ID: LCSD 280-408382/3-A
 Client ID:
 Sample Type: LCSD
 Inject. Date: 26-Mar-2018 10:24:41 ALS Bottle#: 13 Worklist Smp#: 13
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: LCSD280-408382/3-A
 Misc. Info.: HFPO18C26
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180326-68335.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 26-Mar-2018 14:06:29 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
 Process Host: XAWRK007

First Level Reviewer: meyera Date: 26-Mar-2018 13:55:35

Compound	Amount Added	Amount Recovered	% Rec.
\$ 3 13C3 HFPO-DA	10.0	9.26	92.57

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 280-107405-1

SDG No.: _____

Client Sample ID: _____ Lab Sample ID: LLCS 280-408382/4-A

Matrix: Water Lab File ID: hfpo718C23014.d

Analysis Method: 8321A Date Collected: _____

Extraction Method: 3535 Date Extracted: 03/19/2018 20:12

Sample wt/vol: 250 (mL) Date Analyzed: 03/26/2018 10:27

Con. Extract Vol.: 5 (mL) Dilution Factor: 1

Injection Volume: 20 (uL) GC Column: Synergi Hydro ID: _____

% Moisture: GPC Cleanup: (Y/N) N

Analysis Batch No.: 409067 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
13252-13-6	HFPO-DA	0.0201		0.010	

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL02255	13C3 HFPO-DA	93		50-200

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180326-68335.b\hfpo718C23014.d
 Lims ID: LLCS 280-408382/4-A
 Client ID:
 Sample Type: LLCS
 Inject. Date: 26-Mar-2018 10:27:58 ALS Bottle#: 14 Worklist Smp#: 14
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: LLCS280-408382/4-A
 Misc. Info.: HFPO18C26
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180326-68335.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 26-Mar-2018 14:06:29 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK007

First Level Reviewer: meyera Date: 26-Mar-2018 13:55:37

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 0.975 1.045 -0.070 1.000 697147 9.34 3922
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 0.975 1.045 -0.070 697147 10.0 3922
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 0.975 1.056 -0.081 1.000 77216 1.01 29.5

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180326-68335.b\\hfpo718C23014.d

Injection Date: 26-Mar-2018 10:27:58 Instrument ID: LC_LCMS7

Lims ID: LLCS 280-408382/4-A

Client ID:

Operator ID: JBH

ALS Bottle#: 14 Worklist Smp#: 14

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

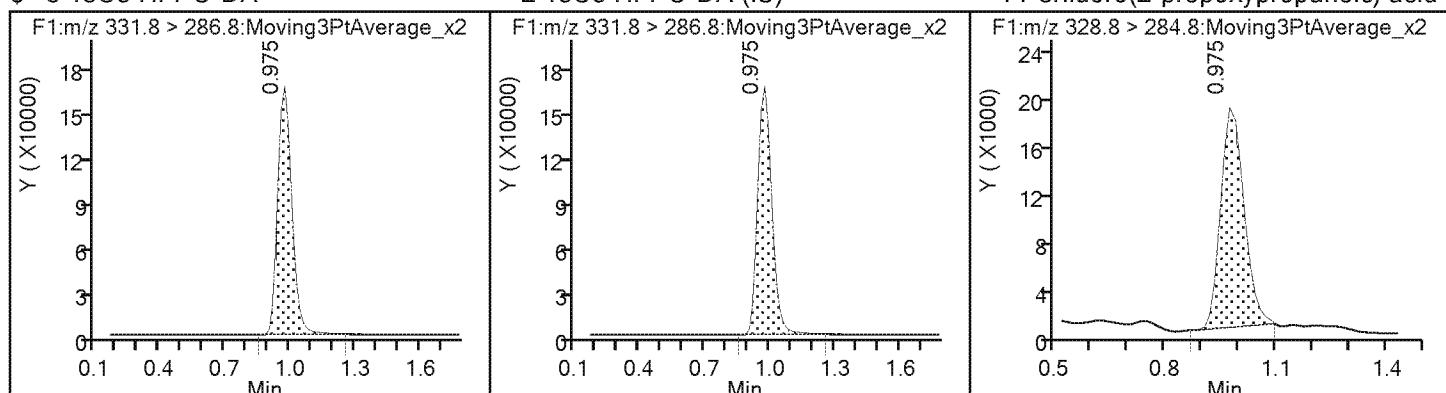
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Recovery Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180326-68335.b\hfpo718C23014.d
 Lims ID: LLCS 280-408382/4-A
 Client ID:
 Sample Type: LLCS
 Inject. Date: 26-Mar-2018 10:27:58 ALS Bottle#: 14 Worklist Smp#: 14
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: LLCS280-408382/4-A
 Misc. Info.: HFPO18C26
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180326-68335.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 26-Mar-2018 14:06:29 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
 Process Host: XAWRK007

First Level Reviewer: meyera Date: 26-Mar-2018 13:55:37

Compound	Amount Added	Amount Recovered	% Rec.
\$ 3 13C3 HFPO-DA	10.0	9.34	93.38

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 280-107405-1

SDG No.: _____

Client Sample ID: _____ Lab Sample ID: DLCK 280-404345/13

Matrix: Water Lab File ID: hfpo718B08044.d

Analysis Method: 8321A Date Collected: _____

Extraction Method: _____ Date Extracted: _____

Sample wt/vol: 1 (mL) Date Analyzed: 02/08/2018 13:38

Con. Extract Vol.: _____ Dilution Factor: 1

Injection Volume: 20 (uL) GC Column: Synergi Hydro ID: _____

% Moisture: _____ GPC Cleanup: (Y/N) N

Analysis Batch No.: 404345 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
13252-13-6	HFPO-DA	<0.50		0.50	

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL02255	13C3 HFPO-DA	104		50-200

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08044.d
 Lims ID: DLCK
 Client ID:
 Sample Type: DLCK
 Inject. Date: 08-Feb-2018 13:38:01 ALS Bottle#: 2 Worklist Smp#: 13
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: DLCK
 Misc. Info.: HFPO18B08
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 08-Feb-2018 15:24:17 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:20:32

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA								
331.8 > 286.8	1.056	1.045	0.011	1.000	776147	10.4	1241	
* 2 13C3 HFPO-DA (IS)								
331.8 > 286.8	1.056	1.045	0.011		776147	10.0	1241	
1 Perfluoro(2-propoxypropanoic) acid							M	
328.8 > 284.8	1.056	1.056	0.0	1.000	21424	0.2255	2.8	M

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

HFPO_CAL-1_00032 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180208-67079.b\\hfpo718B08044.d

Injection Date: 08-Feb-2018 13:38:01

Instrument ID: LC_LCMS7

Lims ID: DLCK

Client ID:

Operator ID: JBH

ALS Bottle#: 2 Worklist Smp#: 13

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

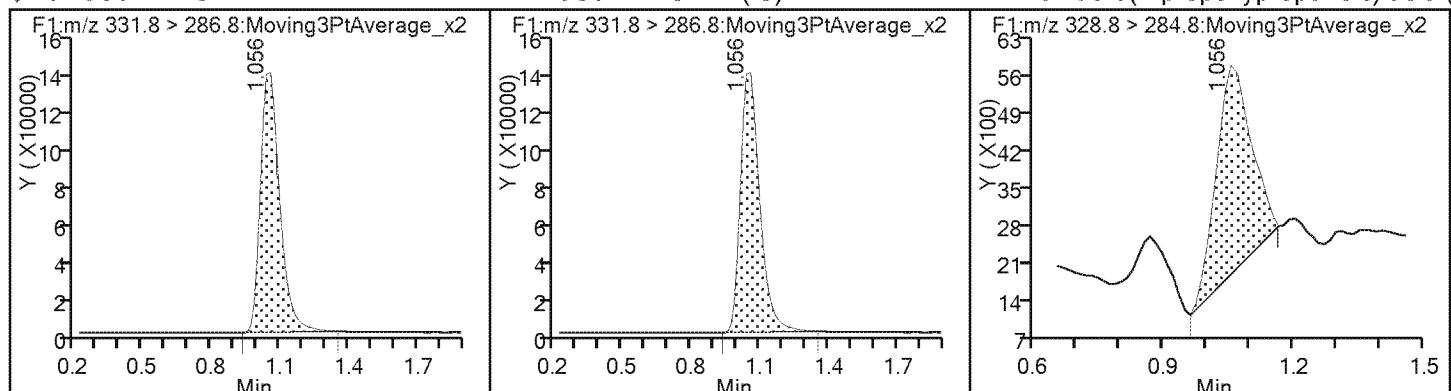
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid (M)



TestAmerica Denver
Recovery Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08044.d
 Lims ID: DLCK
 Client ID:
 Sample Type: DLCK
 Inject. Date: 08-Feb-2018 13:38:01 ALS Bottle#: 2 Worklist Smp#: 13
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: DLCK
 Misc. Info.: HFPO18B08
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 08-Feb-2018 15:24:17 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:20:32

Compound	Amount Added	Amount Recovered	% Rec.
\$ 3 13C3 HFPO-DA	10.0	10.4	103.96

TestAmerica Denver

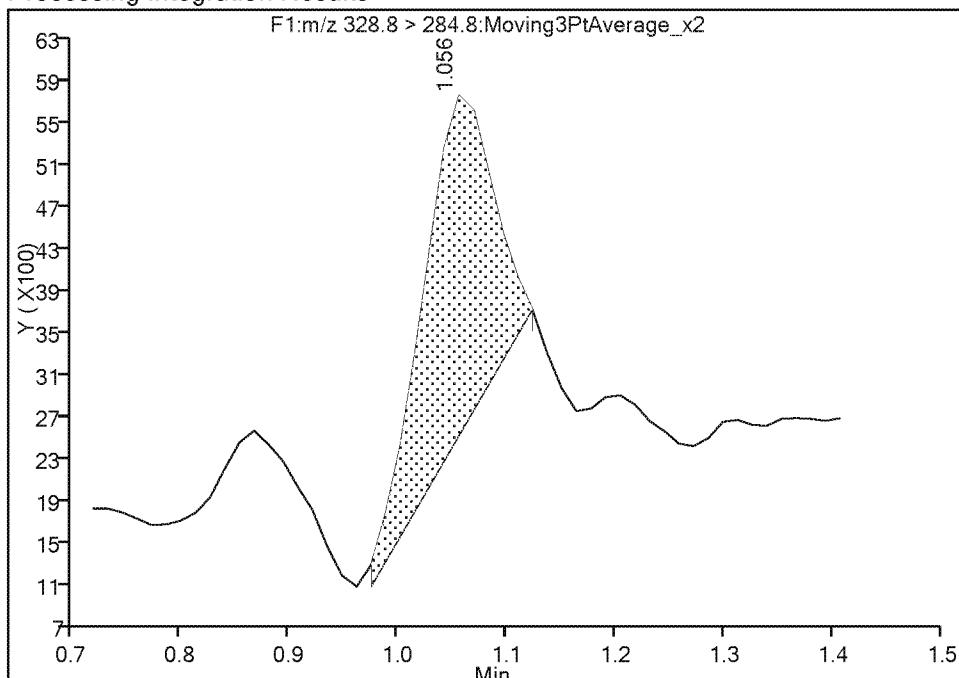
Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180208-67079.b\\hfpo718B08044.d
 Injection Date: 08-Feb-2018 13:38:01 Instrument ID: LC_LCMS7
 Lims ID: DLCK
 Client ID:
 Operator ID: JBH ALS Bottle#: 2 Worklist Smp#: 13
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Method: HFPO Limit Group: LC - 8321A_HFPO_Du
 Column: Detector F1:MRM

1 Perfluoro(2-propoxypropanoic) acid, CAS: 13252-13-6

Signal: 1

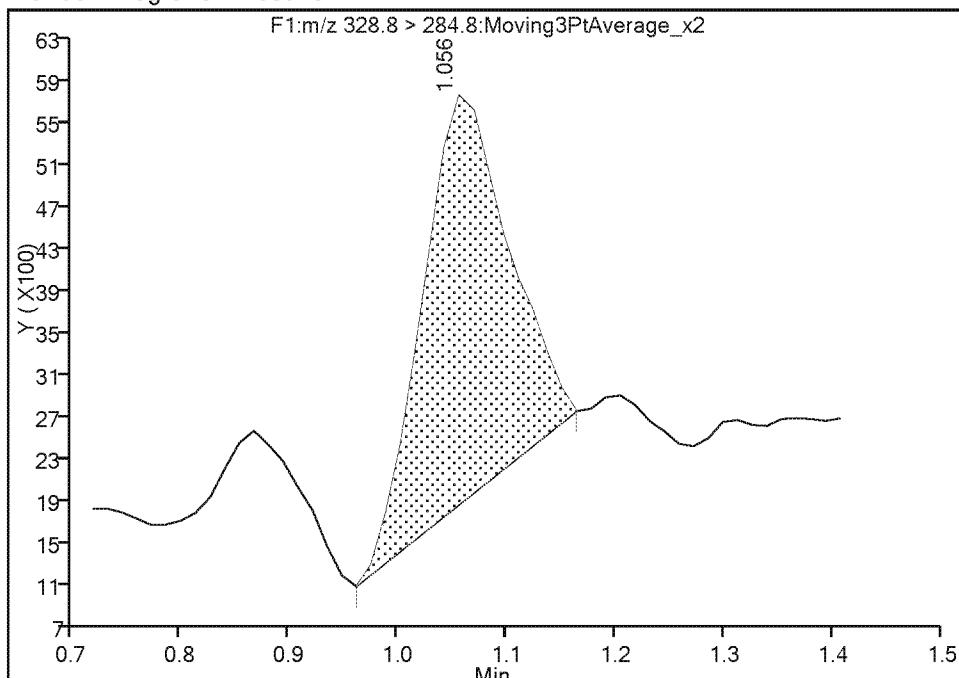
Processing Integration Results

RT: 1.06
 Area: 14614
 Amount: 0.143034
 Amount Units: ug/l



Manual Integration Results

RT: 1.06
 Area: 21424
 Amount: 0.225513
 Amount Units: ug/l



Reviewer: meyera, 08-Feb-2018 15:20:27

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 280-107405-1

SDG No.: _____

Client Sample ID: FAY-D-5562MATTH-W1-1-0313 Lab Sample ID: 280-107405-2 MS
18 MS

Matrix: Water Lab File ID: hfpo718C23022.d

Analysis Method: 8321A Date Collected: 03/13/2018 09:37

Extraction Method: 3535 Date Extracted: 03/19/2018 20:12

Sample wt/vol: 248 (mL) Date Analyzed: 03/26/2018 10:53

Con. Extract Vol.: 5 (mL) Dilution Factor: 1

Injection Volume: 20 (uL) GC Column: Synergi Hydro ID: _____

% Moisture: GPC Cleanup: (Y/N) N

Analysis Batch No.: 409067 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
13252-13-6	HFPO-DA	0.215		0.010	

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL02255	13C3 HFPO-DA	93		50-200

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180326-68335.b\hfpo718C23022.d
 Lims ID: 280-107405-C-2-B MS
 Client ID: FAY-D-5562MATTH-W1-1-031318
 Sample Type: MS
 Inject. Date: 26-Mar-2018 10:53:56 ALS Bottle#: 21 Worklist Smp#: 22
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 280-107405-C-2-BMS
 Misc. Info.: HFPO18C26
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180326-68335.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 26-Mar-2018 14:06:43 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK007

First Level Reviewer: meyera Date: 26-Mar-2018 13:55:55

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 0.961 1.045 -0.084 1.000 692499 9.28 2736
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 0.961 1.045 -0.084 1.000 692499 10.0 2736
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 0.961 1.056 -0.095 1.000 787458 10.7 189

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180326-68335.b\\hfp0718C23022.d

Injection Date: 26-Mar-2018 10:53:56 Instrument ID: LC_LCMS7

Lims ID: 280-107405-C-2-B MS

Client ID: FAY-D-5562MATTH-W1-1-031318

Operator ID: JBH ALS Bottle#: 21 Worklist Smp#: 22

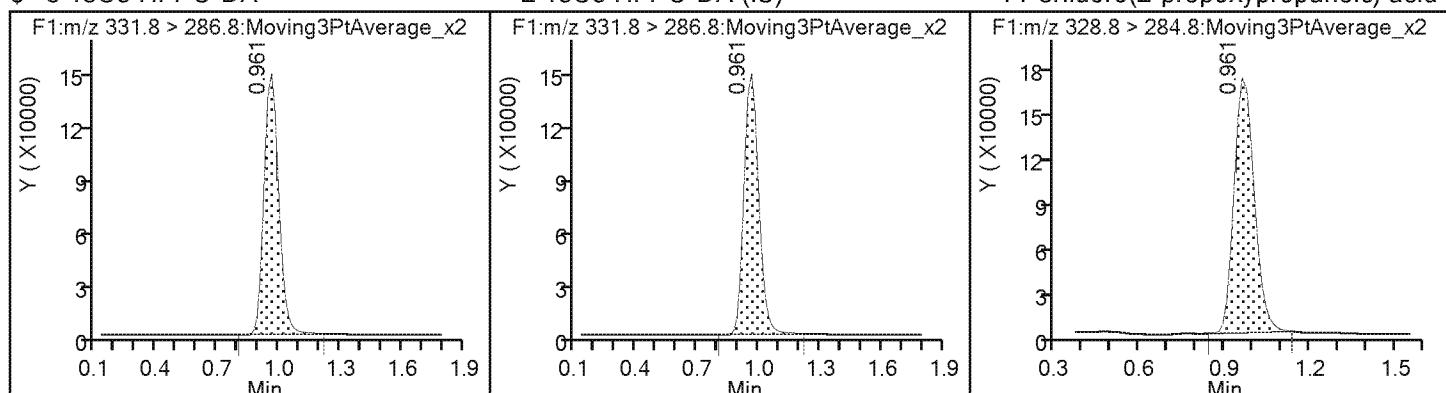
Injection Vol: 20.0 ul Dil. Factor: 1.0000

Method: HFPO Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Recovery Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180326-68335.b\hfpo718C23022.d
 Lims ID: 280-107405-C-2-B MS
 Client ID: FAY-D-5562MATTH-W1-1-031318
 Sample Type: MS
 Inject. Date: 26-Mar-2018 10:53:56 ALS Bottle#: 21 Worklist Smp#: 22
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 280-107405-C-2-BMS
 Misc. Info.: HFPO18C26
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180326-68335.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 26-Mar-2018 14:06:43 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK007

First Level Reviewer: meyera Date: 26-Mar-2018 13:55:55

Compound	Amount Added	Amount Recovered	% Rec.
\$ 3 13C3 HFPO-DA	10.0	9.28	92.75

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 280-107405-1

SDG No.: _____

Client Sample ID: FAY-D-5562MATTH-W1-1-0313 Lab Sample ID: 280-107405-2 DU
18 DU

Matrix: Water Lab File ID: hfpo718C23021.d

Analysis Method: 8321A Date Collected: 03/13/2018 09:37

Extraction Method: 3535 Date Extracted: 03/19/2018 20:12

Sample wt/vol: 257.3 (mL) Date Analyzed: 03/26/2018 10:50

Con. Extract Vol.: 5 (mL) Dilution Factor: 1

Injection Volume: 20 (uL) GC Column: Synergi Hydro ID: _____

% Moisture: GPC Cleanup: (Y/N) N

Analysis Batch No.: 409067 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	
13252-13-6	HFPO-DA	0.0263		0.010	

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL02255	13C3 HFPO-DA	95		50-200

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180326-68335.b\hfpo718C23021.d
 Lims ID: 280-107405-A-2-A DU
 Client ID: FAY-D-5562MATTH-W1-1-031318
 Sample Type: DU
 Inject. Date: 26-Mar-2018 10:50:41 ALS Bottle#: 20 Worklist Smp#: 21
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 280-107405-A-2-ADU
 Misc. Info.: HFPO18C26
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180326-68335.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 26-Mar-2018 14:06:43 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK007

First Level Reviewer: meyera Date: 26-Mar-2018 13:55:53

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 0.961 1.045 -0.084 1.000 706454 9.46 3703
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 0.961 1.045 -0.084 1.000 706454 10.0 3703
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 0.975 1.056 -0.081 1.000 104326 1.35 32.1

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180326-68335.b\\hfp0718C23021.d

Injection Date: 26-Mar-2018 10:50:41 Instrument ID: LC_LCMS7

Lims ID: 280-107405-A-2-A DU

Client ID: FAY-D-5562MATTH-W1-1-031318

Operator ID: JBH ALS Bottle#: 20 Worklist Smp#: 21

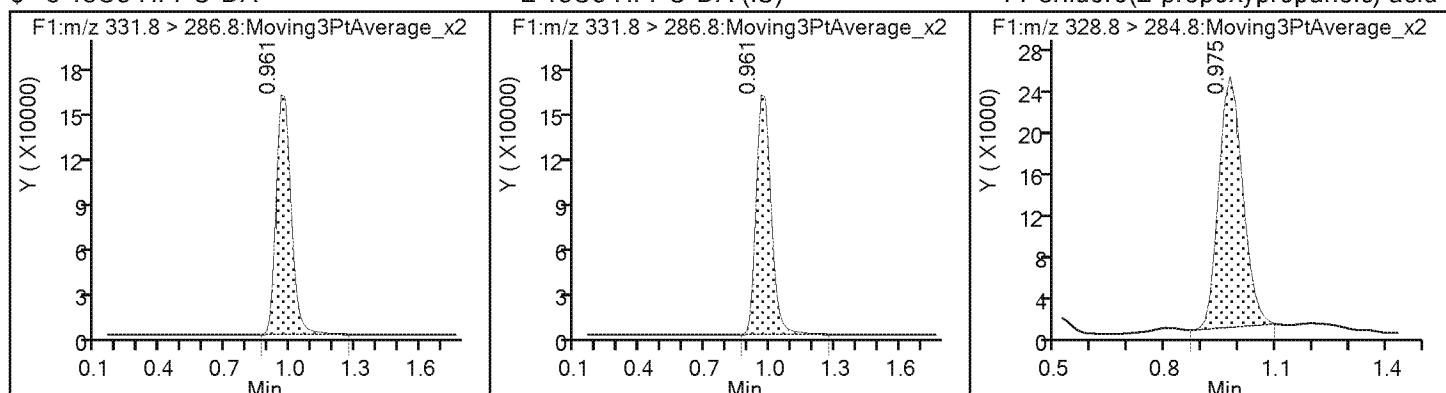
Injection Vol: 20.0 ul Dil. Factor: 1.0000

Method: HFPO Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Recovery Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180326-68335.b\hfpo718C23021.d
 Lims ID: 280-107405-A-2-A DU
 Client ID: FAY-D-5562MATTH-W1-1-031318
 Sample Type: DU
 Inject. Date: 26-Mar-2018 10:50:41 ALS Bottle#: 20 Worklist Smp#: 21
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 280-107405-A-2-ADU
 Misc. Info.: HFPO18C26
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180326-68335.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 26-Mar-2018 14:06:43 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
 Process Host: XAWRK007

First Level Reviewer: meyera Date: 26-Mar-2018 13:55:53

Compound	Amount Added	Amount Recovered	% Rec.
\$ 3 13C3 HFPO-DA	10.0	9.46	94.62

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Denver

Job No.: 280-107405-1

SDG No.:

Instrument ID: LC_LCMS7

Start Date: 10/10/2017 09:35

Analysis Batch Number: 390728

End Date: 10/10/2017 11:19

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
STD001 280-390728/3 IC		10/10/2017 09:35	1	hfpo717J10026.d	Synergi Hydro
STD002 280-390728/4 IC		10/10/2017 09:38	1	hfpo717J10027.d	Synergi Hydro
STD003 280-390728/5 IC		10/10/2017 09:41	1	hfpo717J10028.d	Synergi Hydro
STD004 280-390728/6 IC		10/10/2017 09:45	1	hfpo717J10029.d	Synergi Hydro
STD005 280-390728/7 IC		10/10/2017 09:48	1	hfpo717J10030.d	Synergi Hydro
STD006 280-390728/8 IC		10/10/2017 09:51	1	hfpo717J10031.d	Synergi Hydro
STD007 280-390728/9 IC		10/10/2017 09:54	1	hfpo717J10032.d	Synergi Hydro
STD008 280-390728/10 IC		10/10/2017 09:58	1	hfpo717J10033.d	Synergi Hydro
ICB 280-390728/11		10/10/2017 10:01	1		Synergi Hydro
ZZZZZ		10/10/2017 10:04	1		Synergi Hydro
ICV 280-390728/13		10/10/2017 10:07	1	hfpo717J10036.d	Synergi Hydro
ZZZZZ		10/10/2017 10:11	1		Synergi Hydro
ZZZZZ		10/10/2017 10:14	1		Synergi Hydro
ZZZZZ		10/10/2017 10:17	1		Synergi Hydro
ZZZZZ		10/10/2017 10:20	1		Synergi Hydro
ZZZZZ		10/10/2017 10:23	1		Synergi Hydro
ZZZZZ		10/10/2017 10:27	1		Synergi Hydro
ZZZZZ		10/10/2017 10:30	1		Synergi Hydro
ZZZZZ		10/10/2017 10:33	1		Synergi Hydro
ZZZZZ		10/10/2017 10:36	1		Synergi Hydro
ZZZZZ		10/10/2017 10:40	1		Synergi Hydro
CCV 280-390728/24		10/10/2017 10:43	1		Synergi Hydro
ZZZZZ		10/10/2017 10:46	1		Synergi Hydro
ZZZZZ		10/10/2017 10:49	1		Synergi Hydro
ZZZZZ		10/10/2017 10:53	1		Synergi Hydro
ZZZZZ		10/10/2017 10:56	1		Synergi Hydro
ZZZZZ		10/10/2017 10:59	1		Synergi Hydro
ZZZZZ		10/10/2017 11:02	1		Synergi Hydro
ZZZZZ		10/10/2017 11:06	1		Synergi Hydro
ZZZZZ		10/10/2017 11:09	1		Synergi Hydro
ZZZZZ		10/10/2017 11:12	1		Synergi Hydro
ZZZZZ		10/10/2017 11:16	1		Synergi Hydro
CCV 280-390728/35		10/10/2017 11:19	1		Synergi Hydro

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Denver

Job No.: 280-107405-1

SDG No.:

Instrument ID: LC_LCMS7

Start Date: 02/08/2018 13:05

Analysis Batch Number: 404345

End Date: 02/08/2018 13:41

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
STD001 280-404345/3 IC		02/08/2018 13:05	1	hfpo718B08034.d	Synergi Hydro
STD002 280-404345/4 IC		02/08/2018 13:08	1	hfpo718B08035.d	Synergi Hydro
STD003 280-404345/5 IC		02/08/2018 13:12	1	hfpo718B08036.d	Synergi Hydro
STD004 280-404345/6 IC		02/08/2018 13:15	1	hfpo718B08037.d	Synergi Hydro
STD005 280-404345/7 IC		02/08/2018 13:18	1	hfpo718B08038.d	Synergi Hydro
STD006 280-404345/8 IC		02/08/2018 13:21	1	hfpo718B08039.d	Synergi Hydro
STD007 280-404345/9 IC		02/08/2018 13:25	1	hfpo718B08040.d	Synergi Hydro
STD008 280-404345/10 IC		02/08/2018 13:28	1	hfpo718B08041.d	Synergi Hydro
STD009 280-404345/11 IC		02/08/2018 13:31	1	hfpo718B08042.d	Synergi Hydro
ICB 280-404345/12		02/08/2018 13:34	1	hfpo718B08043.d	Synergi Hydro
DLCK 280-404345/13		02/08/2018 13:38	1	hfpo718B08044.d	Synergi Hydro
ICV 280-404345/14		02/08/2018 13:41	1	hfpo718B08045.d	Synergi Hydro

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Denver

Job No.: 280-107405-1

SDG No.:

Instrument ID: LC_LCMS7

Start Date: 03/26/2018 10:14

Analysis Batch Number: 409067

End Date: 03/26/2018 11:39

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 280-409067/10		03/26/2018 10:14	1	hfpo718C23010.d	Synergi Hydro
MB 280-408382/1-A		03/26/2018 10:18	1	hfpo718C23011.d	Synergi Hydro
LCS 280-408382/2-A		03/26/2018 10:21	1	hfpo718C23012.d	Synergi Hydro
LCSD 280-408382/3-A		03/26/2018 10:24	1	hfpo718C23013.d	Synergi Hydro
LLCS 280-408382/4-A		03/26/2018 10:27	1	hfpo718C23014.d	Synergi Hydro
ZZZZZ		03/26/2018 10:31	1		Synergi Hydro
ZZZZZ		03/26/2018 10:34	1		Synergi Hydro
ZZZZZ		03/26/2018 10:37	1		Synergi Hydro
280-107405-1		03/26/2018 10:40	1	hfpo718C23018.d	Synergi Hydro
CCV 280-409067/19		03/26/2018 10:44	1	hfpo718C23019.d	Synergi Hydro
280-107405-2		03/26/2018 10:47	1	hfpo718C23020.d	Synergi Hydro
280-107405-2 DU		03/26/2018 10:50	1	hfpo718C23021.d	Synergi Hydro
280-107405-2 MS		03/26/2018 10:53	1	hfpo718C23022.d	Synergi Hydro
280-107405-3		03/26/2018 10:57	1	hfpo718C23023.d	Synergi Hydro
280-107405-4		03/26/2018 11:00	1	hfpo718C23024.d	Synergi Hydro
ZZZZZ		03/26/2018 11:03	1		Synergi Hydro
ZZZZZ		03/26/2018 11:06	1		Synergi Hydro
ZZZZZ		03/26/2018 11:10	1		Synergi Hydro
ZZZZZ		03/26/2018 11:13	1		Synergi Hydro
CCV 280-409067/29		03/26/2018 11:16	1	hfpo718C23029.d	Synergi Hydro
ZZZZZ		03/26/2018 11:19	1		Synergi Hydro
ZZZZZ		03/26/2018 11:23	1		Synergi Hydro
ZZZZZ		03/26/2018 11:26	1		Synergi Hydro
ZZZZZ		03/26/2018 11:29	1		Synergi Hydro
ZZZZZ		03/26/2018 11:32	1		Synergi Hydro
ZZZZZ		03/26/2018 11:36	1		Synergi Hydro
CCV 280-409067/36		03/26/2018 11:39	1		Synergi Hydro

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Denver

Job No.: 280-107405-1

SDG No.:

Batch Number: 408382

Batch Start Date: 03/19/18 20:12

Batch Analyst: Cokley, Cheyana D

Batch Method: 3535

Batch End Date: 03/19/18 21:32

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	HFPO I.S. 00010	HFPO Spike 00005
MB 280-408382/1		3535, 8321A				250 mL	5 mL	0.1 mL	
LCS 280-408382/2		3535, 8321A				250 mL	5 mL	0.1 mL	0.1 mL
LCSD 280-408382/3		3535, 8321A				250 mL	5 mL	0.1 mL	0.1 mL
LLCS 280-408382/4		3535, 8321A				250 mL	5 mL	0.1 mL	0.01 mL
280-107405-B-1	FAY-D-5562MATTW-W1-1-031318D	3535, 8321A	T	283.6 g	28.0 g	255.6 mL	5 mL	0.1 mL	
280-107405-C-2	FAY-D-5562MATTW-W1-1-031318	3535, 8321A	T	268.5 g	27.4 g	241.1 mL	5 mL	0.1 mL	
280-107405-A-2	FAY-D-5562MATTW-W1-1-031318	3535, 8321A	T	284.9 g	27.6 g	257.3 mL	5 mL	0.1 mL	
280-107405-C-2	FAY-D-5562MATTW-W1-1-031318	3535, 8321A	T	276.2 g	28.2 g	248 mL	5 mL	0.1 mL	0.1 mL
280-107405-B-3	FAY-D-5562MATTW-W1-2-031318	3535, 8321A	T	296.2 g	27.9 g	268.3 mL	5 mL	0.1 mL	
280-107405-D-4	FAY-D-FB-031318	3535, 8321A	T	295.7 g	28.7 g	267 mL	5 mL	0.1 mL	

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Denver

Job No.: 280-107405-1

SDG No.:

Batch Number: 408382

Batch Start Date: 03/19/18 20:12

Batch Analyst: Cokley, Cheyana D

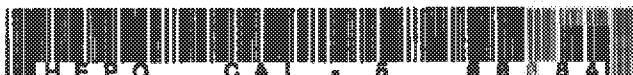
Batch Method: 3535

Batch End Date: 03/19/18 21:32

Batch Notes	
Acid ID	2% Formic Aci_00147
Acid Name	2% Formic Acid
Balance ID	24350888
Batch Comment	Reviewer:CDC
First End time	3.19.18@2059
H2O ID	HPLC_Water_00869
Pipette ID	P, SPE-1, syringe
Reagent ID	10% NH4OH
Reagent Lot Number	10% NH4OH_00124
Solvent Lot #	Methanol_00196
Solvent Name	Methanol
SOP Number	DV-OP-0019
SPE Cartridge Type	STRATA-X-AW (8B S038 FCH)
Solid Phase Extraction Disk ID	S308-0080
First Start time	3.19.18@2030

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

Reagent ID: **HFPO_CAL-5_00084**

Description:	level5	Expiration Date:	04/02/2018
No. of Bottles:	1	Laboratory:	TestAmerica Denver
Storage Location:	LCMS	Prepared By:	Meyer, Andrew GC
Reagent Volume:	1.000 mL	Solvent:	80:20 Methanol : H2O
Creation Date:	03/19/2018	Solvent Lot:	00018
Open Date:			
Container(s):	6009511		
Comment:	level-5		

Reagent Analyte Information

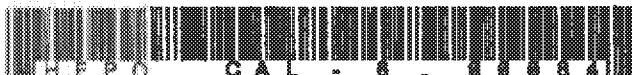
Analyte	Source ID	Source Exp. Date	Source Conc.	Source Conc. Units	Final Conc.	Final Conc. Units
13C3 HFPO-DA	HFPO LS_00010	03/08/2019	0.60000	ug/mL	10.00000	ug/L
13C3 HFPO-DA (S)	HFPO LS_00010	03/08/2019	0.60000	ug/mL	10.00000	ug/L
Perfluoro(2-propoxypropanoic) acid	HFPO Spike_00006	03/07/2019	0.50000	ug/mL	6.00000	ug/L

Source Reagents

Reagent	Description	Type	Expiration	Vendor	Vendor Lot #	Vendor Cat Lot #	Volume Used	Volume Units
HFPO LS_00010	Internal Standard for HFPO 0.6ug/ml		03/08/19				20.00000	uL
HFPO Spike_00006	HFPO LCS/Calibration Spike 0.5ug/ml		03/07/19				10.00000	uL

Judy POM

3/21/18

**Reagent ID:** **HFPO_CAL-6_00084**

Description:	level8	Expiration Date:	04/02/2018
No. of Bottles:	1	Laboratory:	TestAmerica Denver
Storage Location:	LCMS	Prepared By:	Meyer, Andrew GC
Reagent Volume:	1.000 mL	Solvent:	80:20 Methanol : H2O
Creation Date:	03/19/2018	Solvent Lot:	00016
Open Date:			
Container(s):	5009532		
Comment:	level8		

Reagent Analyte Information

Analyte	Source ID	Source Exp. Date	Source Conc.	Source Conc. Units	Final Conc.	Final Conc. Units
13C3 HFPO-DA	HFPO LS_00010	03/08/2018	0.50000	ug/mL	10.00000	ug/L
13C3 HFPO-DA (S)	HFPO LS_00010	03/08/2018	0.50000	ug/mL	10.00000	ug/L
Perfluoro(1-propoxypropene) add	HFPO Spike_00005	03/07/2018	0.50000	ug/mL	10.00000	ug/L

Source Reagents

Reagent	Description	Type	Expiration	Vendor	Vendor Lot #	Vendor Cat Lot #	Volume Used	Volume Units
HFPO LS_00010	Internal Standard for HFPO 0.5ug/ml		03/08/18				20.00000	uL
HFPO Spike_00005	HFPO LC/Calibration Spike 0.5ug/ml		03/07/18				20.00000	uL

*Chad Pern**3/27/18*

Shipping and Receiving Documents

TestAmerica Denver

4956 Yarrow Street
Arvada, CO 80002
Phone (303) 738-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica

THE LEADING TEST & INSPECTION SERVICES PROVIDER

Client Information		Sample ID: TPKSCNCP	Lab Pat: Johnson, Michelle	Case Tracking No.: 100	DOC No.: 100
Client Contact:	Mr. Michael Aucan	Phone: 704 - 600 - 5746	E-Mail: michelle.johnson@testamerica.com	Prep. By: None	Page #: 1
Company:	The Chemists Company FC, LLC	Analysis Requested			
Address:	100 E AECOM 40501 Colestown Road, Suite 300	Date Date Received:			
City:	Newark	YAT Requested (Days): 10 Business Days			
State/Zip:	DE 19713				
Phone:	302-781-5873				
Email:	michael.aucan@aecom.com				
Project Name:	FAY-2018 Residential Sampling				
Site:	None				
280-107405 Chain of Custody					
HPLC-DADCNMS					
Sample Identification					
Sample Date:	Sample Time:	Sample Type:	Matrix:	Preservation Codes:	
		(C=Control, G=Grab)	(V=Vial, P=Plastic, S=Stainless, A=Aluminum)		
03/13/18	09:37	G	V	Hold all volumes as retentions	
03/13/18	09:37	G	V		
03/13/18	09:37	G	V		
03/13/18	09:48	G	V		
03/13/18	09:37	G	V		
03/13/18	07:58	G	V		
Special Instructions/Notes:					
None					
<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For Months					
Special Instructions/QC Requirements:					
<input type="checkbox"/> Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison A <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested: I, II, III, IV. Other (specify): Level IV					
Empty Kit Requisitioned by:					
Requisitioned by: None Received by: None Date: None Time: None Received by: None Received by: None Date: None Time: None					
Custody Seals Intact: <input checked="" type="checkbox"/> Custody Seal No.: None A. Yes A. No					

Login Sample Receipt Checklist

Client: Chemours Company FC, LLC The

Job Number: 280-107405-1

Login Number: 107405

List Source: TestAmerica Denver

List Number: 1

Creator: Johnston, Michelle A

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	